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Criticism of Quinine Policy in India

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Since the publication of my article on the Quinine Policy of the Government of India in the January, 1931 issue of the Indian Medical World (since converted into the Journal of the Indian Medical Association), a very interesting communication has been received by me from the Bureau Tot Beverdering Van Hat Kininegebruik of Amsterdam. This communication was published in the July issue of the Indian Medical World, in which the activities of the Kina Bureau were discussed in some detail. The following notes, therefore, may be of some interest in the clarification of the position of quinine in India.

Kina Bureau, being a business concern is entitled to see that the price obtained for the quinine guarantees a remunerative cultivation of cinchona bark and manufacture of quinine. What we objected to and still object is to the Government of India having entered into the convention and thereby artificially keeping up prices of quinine in India, not only in the open bazar but also to its constituents, the various provincial Governments, the District Boards and Municipalities. The artificially kept up price of quinine having militated against it being consumed by provincial Governments and local bodies, a very piquant situation has arisen in India *viz.*, a huge stock of unused remedy and an appalling degree of unrelieved suffering, a condition which is intolerable. Government of India has got an immense stock of accumulated quinine which is over 400,000 lbs. which must have cost the Government more than a crore of rupees entailing an annual interest charge of about Rs. 5 lakhs per annum (*vide* paga 42 of DR. CHARLES BENTLEY's "Quinine Policy" published by the Public Health Department in 1928).

Government of India manufacture annually 42,000 lbs. of quinine out of the present consumption of 160,000 lbs. So it must have taken a very long time for the Government to accumulate the huge stock. Yet from the communication from Kina Bureau it will be seen that the Government of India signed for 1921-23 for supply of a quantity of 60,000 kilos of quinine (130,000 lbs.) from the Kina Bureau.

It would be very interesting to know at what price this contract was made. No price is quoted in the communication though it has given quotation in all other cases where extra-advantageous prices have been quoted *e. g.*, Belgian Congo, the State of Mysore and Government of Indo-China. Mention is also made of supply of quinine at cheap prices to a number of Governments including Argentine, Belgium, Brazil, Bulgaria, Dutch East Indies, Egypt, Greece, Roumania, Soviet Russia, Spain, Turkey, Czecho-Slovakia and Jugo-Slavia.

The omission of the name of British India is very significant. It is not at all clear whether this contract has been signed by the Government at a higher price.

Over and above this, the Government of India also signed with Howard and Co., (a British component of Kina Bureau) for a very large supply of cinchona bark. The Government of

India imported 115,000 lbs of bark in 1928-29 (*vide* pp. 59 of Review of Trade in India for 1929-30, Number 2240 of the Department of Commercial Intelligence).

67th annual report of the Government cinchona plantations and factories in Bengal for the year 1928-29 in page 1 speaks about these in an half apologetic tone—"An impasse has been reached that could not possibly have been foreseen by Government when it signed for large bark and quinine contracts for all India. These contracts have resulted in an accumulation of stocks acquired for a specific purpose, that seems under the present circumstances to be no longer attainable."

Howard's bark is being largely consumed by Nevadattu Factory of the Madras Government. A comparison of quinine manufactured at Mungpoo factory which largely consumed Bengal bark with that manufactured at Nevadattu confirms our belief that the Howard bark was bought at a very high price.

COST AT MUNGPOO—

Cost per lb. of quinine in the bark is 4·6 rupees. Cost of extraction, packing, delivery to railway station etc. works up to 2·72 rupees per lb. Total cost of manufactured quinine up to its reaching the railway station is rupees seven and annas four only per lb (*vide* page 7 of 67th annual report). Rate per pound of bark used at Nevadattu is as high as rupees ten and annas twelve.

The cost of extraction etc. per pound at Nevadattu is also a little higher than the cost at Mungpoo and works up to rupees three and annas three per pound (*vide* page 8 of No. 208 of Development Department Bulletin, being the Government of Madras Cinchona Administration Report of 1928-29—published in 1930).

India presently consumes only 160,000 lbs. of quinine. Bengal can and should alone consume this quantity if an appreciable general effect is likely to be visible for the use of this drug (*vide* paga 27 of DR. BENTLEY'S Quinine Policy). Report of the Royal Agricultural Commission—page 490, para 411 draws pointed attention to this. It reports—"Both for the prevention and the treatment of Malaria, a much wider distribution of quinine is necessary. At present the high price of quinine militates against this. The total consumption of quinine in India is estimated at 160,000 lbs. of which 42,000 lbs. are manufactured in the country. In these circumstances, the India price is determined by the world price and thus, as is well known, is monopoly price owing to the fact that ninety per cent. of the world's supply comes from Java. To reduce the internal price to a level at which the Government of India would be able to embark on intensive anti-malaria campaign, it would be necessary that India should produce all its own requirements and thus be able to reduce the monopoly price.

Mungpoo firm has at present the capacity to manufacture 50,000 lbs. of quinine (*vide* DR. BENTLEY'S Quinine Policy, paga 23) but manufactures only 24,000 lbs. of quinine (*vide* page 14 of the 67th annual report).

Nevadattu factory also has presently much large capacity of manufacture as would be apparent from the following extract :—

"Until a plentiful supply of bark can be obtained, the working of the factory was restricted as before to the economic figure of output *viz.*, 22,000 lbs. of quinine sulphate" (*vide* page 4 of No. 208 Development Bulletin of the Government of Madras).

That the supply of bark can very much be augmented will be borne out by the fact that the original proposal of gradual planting of cinchona trees in the Anai Malais estate was designed to comprise 2,300 acres whereas the present acreage is only 753. So there is 1547 acres still left out, only one third of the area is under cultivation (*vide* No. 208 Development Bulletin, pages 3 and 4). There are also rooms for extension at Nevadattu and Dedabilla. Moreover, there is a vast field for private enterprise ot Madras.

The Cinchona Administration Report of the Madras Government of 1928-29, page 2, says :—"There appears no reason why the private grower should not be invited to assist in liberat-

ing India from its present dependence on foreign bark."

Besides, vast tracts fit for cinchona plantation are lying as forest tracts in the Himalayan region and also in Mergui district of Burma.

The prices having come down to a low level tea manufacturing cannot be maintained if cultivation is not restricted. These tea planters should be induced to plant cinchona and in order to foster this the Government should come forward with an assurance of a minimum rate per unit of quinine to safeguard against loss. State assistance should also be given for the selection of suitable seeds and expert knowledge derived from Government plantation should be at the disposal of private growers. Inspite of those unassailable facts, there is no dearth of people defending the present policy. They say that as cinchona trees require at least nine years' growth before they can afford a supply of bark suitable for the manufacture of quinine so there can be no alternative supply for the next ten years. Consideration of the facts mentioned will show that the question both of immediate and ultimate source of supply must be decided before it is possible to embark on a serious campaign for extending the sale of quinine; otherwise Government might suddenly find itself faced, on the one hand, with depletion of its available stocks and on the other, with a world monopoly which in the face of increased demand would probably result in a greater enhancement of price (BENTLEY, Quinine Policy, pp. 23). This observation of DR. BENTLEY is not justified by the facts cited in the communication of the Kina Bureau. The figures of production, capacity and actual consumption of Java quinine from 1921 to 1930 show that from a commercial point of view the production of cinchona bark exceeds very much the quinine consumption and to avoid such conditions the Kina Bureau is granting extra-advantageous prices, which is out of all relation to the market price, on the guarantee that the quinine so supplied is exclusively used for anti-malarial campaigns and this quinine does not reappear in the market. It is prepared to enter presently for 500,000 kilos per year and in case an efficacious quinine distribution should make necessary the supply of larger quantities, the Kina Bureau can take measures to increase considerably the quinine production. Kina Bureau is ready to supply this at the rate of £1. 13s. 4d per kilo (*i. e.*, 2 lbs. 3 oz. 127 grs.) which works up to 10 or 11 rupees per lb. If Kina Bureau, on receiving certain guarantees, is prepared to give this facility, there is no reason why the Government of India should not sell their quinine at this price instead of the "Ring Price" of Rs. 18 per lb. to provincial Governments, local bodies and bonafide organisations engaged in anti-malaria work.

Kina Bureau is ready to enter into a contract for twenty years and in these twenty years India can extend freely its cinchona plantation in order to grow its own supply and be independent of Java and its monopolist influence.

To assure its being exclusively used for anti-malarial campaign and to prevent its reappearance in the market the quinine sold at a reduced price, can be coloured say pink, and every one found selling this quinine at market can be punished by penalising such sale. Will the Government of India lower the price of quinine and thus release its present stock of a crore of rupees and save the burden of an annual interest charge of 5 lakhs or will still look to the interest of the British manufacturers like Howard ?

In this connection it would be interesting to know what other countries are doing to meet the supply essential for the complete carrying out of a general anti-malarial campaign of treatment at a reasonable price. "Bulgaria has a strict Government monopoly, sale being permitted only by pharmacists at a fixed price allowing certain profit to the sellers. Tablets for free distribution are coloured green in order to distinguish them from those on sale. In Roumania, the health authorities have established depots of quinine for treatment of patients in the worst areas. In Russia likewise, the authorities have set 10,000 out of 60,000 kilos which the State was able to buy, for free distribu-

tion in malaria stations, the remainder being bought by provincial health services, insurance organisations etc. A scheme is in preparation for the sale of the drug to peasantry at cost price through the Co-operative Society in Italy. A system of Government supply has been developed to safeguard the public against fraudulent substitutes and to control the market. The Italian Government sanctions the sale of pure preparations manufactured at the State factory at Turin, at almost cost price, through pharmacists and tobacconists and at actual cost price to institutions and communes, the profits accruing being put into a special malaria fund" (*vide* League of Nations, Malaria Commission Report, on its tour of investigation in certain European countries in 1924 C. H. 273).

In conlcusion, I would like to offer my sincere thanks to my friend, MR. P. GANGULI, M.A., B.L., for having helped with the references.

The Problem of Malaria in Bengal with particular Reference to Birnagar

By K. BOSE,

Honorary Secretary, Birnagar Palli Mandali

The Malaria Commission of the League of Nations which made a tour of British India during 1929 has issued an interesting report containing important observations and recommendations. The Commission has discussed at length the problem of Malaria in Bengal, particularly with reference to the theory advanced by DR. C. A. BENTLEY which is now well-known. The Commission considers that there is little room for doubt of DR. BENTLEY'S statement that the absence of malaria in Eastern Bengal is due to the circulation of silt-laden river water through the fields. DR. BENTLEY holds that the conditions in the western portion of Lower Bengal a century ago were similar to present conditions in the eastern portion. It was as freely flooded during the rains but the system has been destroyed. The Commission considers that DR. BENTLEY'S scheme to eradicate malaria from Lower Bengal is the logical outcome of this opinion. No special anti-larval measures are needed : merely the re-establishment of the old system of irrigation by dredging the canals and improving embankments, roads, railways and bridges, so that they no longer obstruct the free flow of silt-laden flood water which prevents Anopheles from breeding. Breeding recommences only when the flood subsides and the silt settles down late in autumn. It is then too late for Anopheline mosquitoes to get infected. It is an economical and agricultural measure, which will not prevent Anopheles from breeding but which will render it harmless.

Early in 1930 SIR WILLIAM WILLCOCKS, the celebrated engineer of Egypt, after an inspection of the waterways of Bengal delivered before the Calcutta University a series of lectures in which he not only supported DR. BENTLEY'S scheme but made practical suggestions for carrying it out.

SIR MALCOLM WATSON of the Ross Institute, London, when he paid a visit to India in 1929 stated that DR. BENTLEY had shown him enough to prove conclusively that there was a case for enquiry and that the whole matter should be reviewed by men who are competent to deal with malaria and we understand that he made a recommendation to the Governor of Bengal to that effect. But so far nothing has come out of it. Apparently, it was decided to wait for the recommendations of the Malaria Commission of the League of Nations. This is now published and the Commissioners unhesitatingly recommend the adoption of DR. BENTLEY'S scheme for Lower Bengal. COL. SIR S. R. CHRISTOPHERS has expressed the opinion in his note prepared for the Commission that malaria in Bengal is "one of the most difficult major sanitary problems in the

world." It is hoped that the Government of Bengal will now take up the consideration of this important matter in right earnest and appoint a committee of expert malariologists and irrigation engineers to work out the scheme. The scheme as set forth by DR. BENTLEY will necessitate the opening of the heads of the Bhagirathi, the Jelangi and the Mathabhanga, and will constitute the most important of the major irrigation works of the Government of Bengal. The Waterways Committee recently appointed by Government has in view the improvement of the rivers, but its scope should be widened and its constitution altered so that it may deal with the bigger problem of malaria in the light of the recommendations of the proposed expert Commitee. It will be observed that the Government of Bengal alone are in a position to undertake a work of this magnitude and the various District Boards and Municipalities can only help them by clearing the minor water channels in their respective jurisdiction in carrying the silty flood water from field to field.

So far as the canal system of Birnagar is concerned the position is fully discussed in my annual report for 1928-29. The Mandali has made a survey of the canal with the object of flooding and flushing the Chaka Bil, but as SIR MALCOLM WATSON was of opinion that this was a big work to be carried out by Government after the enquiry suggested by him, the proposal for the re-excavation of the channel has been held in abeyance.

In view of the financial condition it is probable that Government may not be disposed to undertake DR. BENTLEY'S scheme in its entirety, but it will be most unfortunate if they totally reject it. In the latter event the present Government system of making small anti-malarial grants to the District Boards and Municipalities will no doubt be continued. It is no use minimising the fact that most of this work is done without any expert guidance and that the small money available is spent on various items of work of doubtful anti-malarial value, such as the clearance of jungles without proper investigation whether they harbour any dangerous species of mosquitoes or not, removal of water weeds from a few tanks without determining if they are the breeding grounds of carrier species or not, filling up a few pits where probably *A. subpictus* and *A. fuliginosus* or *A. hyrcanus* var. *nigerrimus* are breeding, oiling some pools (*dobas*) during the rains in most of which carrier species never perhaps breed, and some distribution of quinine by volunteers over whom the authorities have little control, or the opening of a small charitable dispensary where perhaps only a small number of gametocyte carriers of the locality irregularly attend. All these items of work can, of course, be justified from the point of view of sanitation and medical relief but they can hardly be called anti-malarial. The League of Nations' Malaria Commission viewed the societies carrying out such work in their true perspective when they designated some of them as "associations of sick clubs" and stated that their activities in regard to anti-larval work cannot be considered "as anything but purely educational." The money available with each society is utterly inadequate even for carrying systematic anti-larval measures on a limited scale.

If the Government of Bengal find it impossible to accept DR. BENTLEY'S scheme for want of funds they ought to find more money for real anti-malarial work in a few selected areas in each malarious district. The Commission urged that malaria control should be very much more actively prosecuted as a general duty by the public health departments and that the control of rural malaria should be taken up more seriously. It also made the important suggestion that provincial Governments should establish demonstration centres for larval control in selected villages. We welcome this suggestion as it will bring the Government face to face with the realities of the condition under which societies like the Mandali are working. It will doubtless be more economical for Government to utilize a few efficient existing organisations as agencies for undertaking the task on a wider scale than at present by giving them substantial grants. Whatever method is adopted no results commensurate with the cost and labours

involved are likely to be achieved without a careful field investigation and research on the spot.

There is no doubt that malaria control is a costly business and requires expert guidance. There are some critics who discourage anti-larval measures altogether on account of its enormous cost and the impossibility of undertaking it on a wide scale. The Commission has offered a simple solution to overcome this opposition. It is of opinion that if anti-larval measures are thought impossible because of the magnitude of the task, there always remains the alternative of limiting the work to "endemic foci." It suggests that these foci should be located and the cost of anti-larval measures estimated by experiment. Although this suggestion was made with reference to the conditions in the Punjab there is no reason to suppose that it cannot be applied elsewhere in India. It offers a satisfactory solution of the recent controversy in the British Medical Journal between two different schools of thought as to the best way of controlling malaria.

Even if the work is limited to "endemic foci" it is not necessary to carry out a general anti-larval campaign. So far as our experience goes we found that a general anti-larval campaign without a knowledge of the carrier species to be tackled is not only very expensive but may not give the desired result. In the Federated Malay States successful results followed "species sanitation," which is now accepted all over the world as the right anti-malarial method. Our researches have shown that out of 11 Anopheline species present at Birnagar, *Anopheles philippinensis* is the principal, and for all practical purposes the only culprit against which our attack should be directed. In this connection it is interesting to observe that in Assam out of 20 species prevalent, *Anopheles minimus* alone is considered to be the carrier. In both instances the campaign is directed against one species only, though they are different.

In Assam much light has been thrown on the habits of *A. minimus* by the researches of DR. STRICKLAND and DR. RAMSAY and others extending over several years, so that new methods of control have been thought out. But at Birnagar we are just studying the behaviour of *A. philippinensis* and our preliminary findings in this respect are embodied in my report on Mosquito Survey at Birnagar, which has been published in the June number of the Records of the Malaria Survey of India. We now realise the necessity for research work on this species on the spot. DR. BENTLEY appreciating our difficulties readily agreed to train some of our men in identification and dissection work at the Krishnagar Laboratory under DR. P. SUR. The co-operation of the Malaria Survey of India and COL. SIR S. R. CHRISTOPHERS was also received in the solution of certain difficult points. A research laboratory has recently been opened at Birnagar, and the name of DR. P. SUR will remain associated with it as the first instructor of the assistants to be entrusted with the laboratory work. DR. SUR'S name is already well-known for his discovery of malarial parasite in *A. philippinensis*, the importance of which has been recognised by the League of Nations' Malaria Commission. The activities of our Laboratory will for the present be confined to the study of the habits of this mosquito for practical malaria control. There is, therefore, no cause for apprehension of duplication of work with the Krishnagar Laboratory, which carries on research work on all the Anopheline species.

Reference.

Schueffner, W and others—1929. Report of the Malaria Commission of the League of Nations.

Willcocks, Sir William—1930. Ancient System of Irrigation in Bengal.

Bose, K. Malaria Control at Birnagar, 1928-29.

Ramsay, G. C. 1930 Silt and Shade in Malaria Control.

Bose, K. 1931. Mosquito Survey at Birnagar. Rec. Mal. Surv. Ind. Vol. II. No 2.

Quinine Policy of Government

On the 7th September, 1931 at a sitting of the Legislative Assembly, MR. GAYAPRASAD SINGH M. L. A. asked a series of questions touching on the malaria problem of the country and the quinine policy of the Government of India. The questions as well as the answers thereto given by the Hon'ble SIR FAZL-I HUSAIN on behalf of the Government are here given for the information of our readers.
—EDITOR.

QUESTION :	ANSWER :
Will Government be pleased to state :	
(*a*) the total quantity of bark and alkaloids of cinchona in stock at its depots ;	(*a*) The Government of India stocks on the 1st April, 1931, were as follows : Cinchona bark 5,38100 lbs. Quinine Sulphate 3,05,561 ,, Cinchona febrifuge 29,688 ,,
(*b*) the numbers of years during which these stocks have been accumulated ;	(*b*) Since 1919.
(*c*) the cost of stock when purchased, and the current estimate of the cost ;	(*c*) This question is not understood. The present stock was not all purchased. The Government of India have a plantation of their own in Burma and the bark from this plantation is worked up into quinine. The present value of the stocks mentioned in the reply to part (a) is as follows : Cinchona bark Rs. 2,84,974 Quinine Sulphate Rs. 55,00,098 (@ Rs. 18/- per lb.) Cinchona febrifuge Rs. 2,67,192 (@ Rs. 9/- per lb.)
(*d*) the deterioration, if any and consequent depreciation from the keeping ;	(*d*) The stock does not deteriorate or depreciate by keeping.
(*e*) the rules of the Government of India Act under which the purchases where made ; and	(*e*) The purchases were made in the public interest to keep sufficiently large stocks of quinine to provide for the contingency of an increased demand due to a severe epidemic of malaria, and also to guard against the effects of possible combination among producers or manufacturers.
(*f*) the rules, if any, which prohibit the utilisation of the huge stock of quinine for the relief of millions of sufferers from malaria and for prevention of deaths of lacs of such sufferers every year ?	(*f*) The Government of India are not aware of any such rules.
QUESTION :	ANSWER :
(*a*) Are Government aware that :	
(1) the Government Hospital and Dispensary figures show (*i*) over 80,00,000 of malaria cases	The figures appear to have been taken from the report of the Public Health Commissioner with the Government of India for the year 1922. They

treated therein whilst, (*ii*) the number of sufferers who do not attend such hospitals stands at 10,00,00,000 and deaths per year number over 13,00,000 ;

(2) the potential demand for quinine varies between 1,50,000 lbs for class (*i*) and 15,00,000 lbs. for class (*ii*) per annum ; and

(3) the Public Health Commissioner states that "There is no question of effective treatment of malaria in India until consumption of quinine approximates 5,00,000 lbs"

(*b*) Do Government accept the above estimates ; and, if so, do they provide for the supply of this quantity per annum ?

have been quoted correctly except in one respect. The figure in part (2) of the question should be 1,50,300. It may also be mentioned that, if the estimate of annual deaths from malaria referred to in part (1) of the question is based on the figures given on page 99 of the report, these figures relate only to a few provinces, and not to the whole of India.

(*b*) These are estimates only and are a matter of opinion. The quantity of quinine sulphate and cinchona febrifuge issued from the stocks of the Government of India and the Governments of Bengal and Madras amounted to 1,09,439 lbs. in 1928-29 and 91,858 lbs in 1929-30. The question of the adoption of a policy to encourage the use of quinine is for provincial Governments to consider.

QUESTION :

Are Government aware that the quinine ring of Amsterdam controls the world prices of quinine and that the sufferers from malaria in India are deprived of the only specific treatment owing to the heavy cost of quinine ? Under the circumstances, will Government please state the measures they propose to take for regulating the necessary supply of quinine to the 10,00,000 sufferers in India ?

ANSWER :

The world price of quinine is affected by the existence of the Ring to which Honourable Member has referred. The consumption of quinine does not, however, seem to fluctuate with the price as it has not varied appreciably during the last ten years though the price has fallen gradually from 3s. 5d to 1s. 8d an ounce. As regards the second part of the question medical relief is a provincial transferred subject and is the concern of provincial Governments. The Government of India have under consideration the question of disposing of their surplus stocks of quinine.

QUESTION :

(*a*) Will Government please state when they will be in a position to make efficient provision for effective treatment of malaria in India

(*b*) Will Government be pleased to supply figures in acres for consecutive years, from the year of establishment, of cinchona plantations in Madras, Bengal and Burma, the total output of the bark every year, the amount of alkaloids turned out by Government factories and the price at which the salts made in these factories are sold year after year and the accepted total yield of all the plantations within the next 5 years ?

ANSWER :

The Honourable Member apparently does not seem to be satisfied with the 'effectiveness' so far secured. He may rest assured that those engaged in the investigations bearing on this subject are as anxious as he is to make the remedy more effective.

(*b*) A statement giving the necessary information is appended.

Statement referred to in the reply to part (b) of the last question

A. BURMA PLANTATIONS.

Year.	Acres.	Output of Bark.	*Amount of Alkaloids.*		*Selling price per lb.*	
			Quinine Sulphate lbs.	Cinchona Febrifuge lbs.	Quinine Sulphate Rs.	Cinchona Febrifuge Rs.
1924-25	100	...	...	...	...	...
1925-26	99	...	...	...	...	...
1926-27	147	18,965	...	...	...	...
1927-28	122	48,261	945	369	18	9
1928-29	66	1,08,588	2,170	1,260	18	9
1929-30	180	1,42,263	559	480	18	9
1930-31	149	1,31,533	2,786	2,313	18	9

2. Expected annual yield for the next five years.

An average of 140,000 lbs. of bark.
" " of 4,600 lbs. of quinine sulphate.
" " of 2,700 lbs. cinchona febrifuge.

This average is given on the assumption that no further areas will be planted in Burma.

B. MADRAS PLANTATIONS.

Year.	Acres.	Output of Bark.	*Amount of Alkaloids.*		*Selling price per lb.*	
			Quinine Sulphate lbs.	Cinchona Febrifuge lbs.	Quinine Sulphate Rs.	Cinchona Febrifuge Rs.
1922-23	1,482	2,38,671	32,465	11,290	36,27*	8
1923-24	1,397	2,57,707	28,560	17,442	27	8
1924-25	1,367	2,77,394	23,590	11,430	27	8
1925-26	1,308	2,91,825	25,075	10,324	24	9
1926-27	1,451	2,81,435	21,915	10,101	24,18†	9
1927-28	1,567	2,28,409	23,810	15,158	18	9
1928-29	1,858	1,49,299	22,085	17,088	18	9
1929-30	1,857	1,52,421	23,474	14,873	18	9
1930-31	2,002	1,65,571	21,368	10,916	18	9

* Rs. 27 from November 1922.
† Rs. 18 from May 1926.

NOTE—(i) As the records were not readily available statement has been prepared from the year 1922-23 instead of from 1863 when the plantations were first formed in Madras.

(ii) The amount of alkaloids shown each year is derived from (a) the plantation output and (b) cinchona bark purchased from private planters.

2. Expected annual yield for the next five years.

An average of 2,32,880 lbs. bark.
" " of 10,044 lbs. of quinine sulphate.
" " 3,892 lbs. of cinchona febrifuge.

C. BENGAL PLANTATIONS.

Years.	Acres.	Output of Bark. lbs. oz.	Amount of Alkaloids.		Selling price per lb.	
			Quinine Sulphate lbs. oz.	Cinchona Febrifuge lbs. oz.	Quinine Sulphate Rs. as.	Cinchona Febrifuge Rs. as.
1869-70		2,400				
1870-71		12,500				
1871-72		39,000				
1872-73		...				
1873-74		16,000				
1874-75		39,405		48-10		
1875-76		2,11,931		1,940-6		
1876-77		2,07,781		3,750-12		16/-
1877-78		3,44,225		5,162-0		16/8/-
1878-79		1,61,659		7,007-0		16/8/-
1879-80		3,61,590		9,434-13		16/8/-
1880-81		3,77,525		9,296-0		16/8/-
1881-82		3,41,570		8,010-0		16/8/-
1882-83		3,96,980		10,663-4		16/8/-
1883-84		3,05,160		8,714-0		16/8/-
1884-85		3,39,201		6,464-0		16/8/-
1885-86		2,05,410		4,743-0		16/8/-
1886-87		2,25,631		6,790-0		16/8 to 24
1887-88		2,90,410	331-8	6,917-14		16/8 to 24
1888-89		3,73,100	2,191-0	6,384-0	20/-	16/8 to 22
1889-90		3,04,705	1,833-2	6,578-0	18/8 to 20	16/8 to 19/8
1890-91		2,93,972	4,010-0	4,031-0	17 to 20	14 to 17/8
1891-92		2,85,650	4,568-0	4,190-0	16 to 20	10 to 14
1892-93		3,04,390	4,242-4	3,481-8	13/8 to 16	10 to 12
1893-94		4,25,010	4,765-0	3,848-0	13/6 to 16	10 to 12
1894-95		5,00,534	8,317-15	4,032-0	13/8 to 16	10 to 12
1895-96		4,67,190	9,004-0	3,124-0	14 to 16	10 to 12
1896-97		6,29,222	10,672-14	3,452-0	14/8 to 18	10 to 12
1897-98		3,18,715	10,148-12	4,075-0	11 to 15	10 to 12
1898-99		2,36,098	10,335-4	3,912-0	13/3 to 17	10 to 12
1899-1900		2,08,652	8,799-8	4,046-0	14/8 to 17	10 to 12
1900-01		1,98,033	7,347-0	2,488-0	14/8 to 18	10 to 12
1901-02		2,03,405	10,010-12	3,424-0	14/8 to 17	10 to 12
1902-03		2,35,605	11,927-4	4,348-0	14/8 to 17	10 to 12
1903-04		3,16,757	12,314-8	3,800-0	14/8 to 16	10 to 12
1904-05		3,11,278	13,068-12	3,026-0	14/6 to 16	7/8 to 9
1905-06		3,73,813	15,777-12	5,462-0	10/6 to 16	7/8 to 9
1906-07		4,29,557	16,065-4	2,652-0	10/6 to 16	7/8 to 9
1907-08		4,45,638	27,564-0	3,370-0	10/6 to 16	7/8 to 9
1908-09		4,51,768	36,629-5½	7,282-12	10/6 to 16	7/8 to 9
1909-10		3,26,559-1	23,097-4	2,390-0	10 to 15	7/8 to 9
1910-11		5,00,900	39,980-0	...	10 to 15	7/8 to 9
1911-12	1,558	2,99,380	40,378-12	6,004-0	10 to 15	7/8 to 9
1912-13	1,779	6,11,338	43,853-0	6,949-12	10 to 15	7/8 to 9
1913-14	2,246	6,90,524	51,662-0	7,361-0	13 to 21/14	5 to 6
1914-15	2,552	6,80,374	34,650-0	5,307-0	13 to 21/14	5 to 6
1915-16	2,295	5,69,337	41,814-8	12,027-2	14/8 to 17	5 to 6
1916-17	2,405	4,99,417	20,309-8	...	21/8 to 26/8	5 to 6
1917-18	2,514	6,18,703	29,417-8	8,518-0	21/14 to 30	5 to 6
1918-19	2,600	8,22,779	32,640-4	11,439-12	26 to 28	5 to 7
1919-20	3,080	5,20,243	18,138-4	15,166-0	24 to 26	7 to 8
1920-21	3,236	5,01,018	23,984-12	10,626-8	33 to 35	10 to 12
1921-22	3,127	57,562	22,713-0	6,712-0	48 to 50	8 to 10
1922-23	3,026	5,57,037	21,550-6	8,294-0	36 to 38	8 to 10
1923-24	3,055	6,51,452	19,207-6¼	7,857-8	27 to 29	9 to 11
1924-25	3,060	3,98,872	19,230-12	8,098-12	24 to 28	9 to 11
1925-26	3,153	5,38,783	17,378-6	9,168-0	24 to 26	9 to 11
1926-27	4,742*	6,69,066	35,538-7	11,411-0	18 to 20	9 to 11
1927-28	3,162	9,17,259	43,970-0	16,730-0	18 to 20	9 to 11
1928-29	2,986	10,41,827	36,523-0	17-371-0	18 to 20	9 to 11
1929-30	2,877	11,30,402	43,031-0	20,078-0	18 to 20	9 to 11
1930-31	2,658	14,76,059	37,638-0	16-953-0	18 to 20	9 to 11

——*No record of acreage kept*——

* Acres of ground cultivated.

NOTE.—From 1862 to 1864 experiments were carried out.
The first plantations were harvested in 1869-70 from which year figures are shown.

2. Expected annual yield for the next five years.

An average of 1, 100,000 lbs. of bark with quinine contents 44,000 lbs.

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Editorial Comments

When a Government proceeds to apply the retrenchment axe, it looks first at what are loosely termed the non-productive departments, that is to say departments which do not provide a direct revenue return. Within this category fall medicine and sanitation, and true to tradition, the recent retrenchments have made heavy incursions in the departments of public health. At the same time, it is universally admitted that the care of the health of a nation is an asset which cannot be computed in terms of money, and any Government that is truly alive to the needs of their people must realise its responsibility in ministering to the health of the people of the country. This may be regarded as axiomatic, but while the principle may be accepted, it would not appear that it has weighed sufficiently with the Government or the retrenchment committee. It would appear that they have acted merely on the basis of expediency, otherwise some of their recommendations are difficult to follow. We all admit the financial stringency, and at such a time some measure of sacrifice is expected from all. Each case, however, needs to be treated on its own merits, in addition to its relation to others. We submit that where efficiency is impaired, retrenchment defeats its own purpose. To lower the standard of medical relief and sanitation is to endanger the vitality of the people. If the loss of vitality could be computed in terms of money, only then would it be realised how many crores annually may be lost by a policy of short-sighted retrenchment. In a country like India where the need for increased medical facilities is so great, this fact is to be even more greatly deplored. One has only to tour through the cities and villages, or to witness the crowds that clamour at the hospitals to understand how greatly in need are the people for extended medical services and how great is the necessity for sanitation and measures calculated to stem epidemic disease. Tuberculosis, malaria, cholera and plague, take a heavy toll of the population, sap their vitality and decrease their powers of resistance to disease—yet it is in these very directions that the authorities have seen fit to apply the axe with an ardour that is not in evidence in much less important directions.

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We daresay in different circumstances, the cause of public health would have commanded greater consideration than in the circumstances that obtain in India at the present day. For this reason the recommendations of the retrenchment committee were confined to a narrow channel, the broad issues being left out of their purview, and it is only on the broad view that real retrenchment could be effected. This is not the place in which to discuss these issues. They have time and again been the subject of criticism by the general press, but it is necessary to point out that in relation to many other departments, public health has a prior claim. Many of these departments offer much greater opportunity for retrenchment, e.g. the army, the police, the I. C. S. but these departments are just those that resist all popular pressure and enlist the special favour of the powers that be.

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We notice a cut of two-thirds in the income of the Indian Research Fund Association. We deplore the necessity of this cut because we would be the first to admit the need for medical research work in India and the last to recommend any curtailment. In fact, we have always advocated the extension of research work in India, realising its potentialities for the welfare of the people. But while we deplore the cut we must make it clear that we have always considered the emoluments of some of the higher officers employed in the Research Association to be much too high, and we are afraid that as a result, not only will the activities of the Association be curtailed, but in the endeavour to cut their coat according to their cloth the opportunity will be taken of retrenching at the expense of the Indian staff. The Indian staff numbers 62 research workers and the European 12, but these figures should not be taken to imply that greater opportunity for retrenchment offers in regard to the Indian staff than in regrrd to the European staff, for in most cases the emoluments of the posts held by Indian workers are on a much lower scale than those held by the Europeans. No graver injustice could be done to the cause of medical research in India, for if Indian research workers are to be made the tool of Government opportunism, the wells of supply will soon be found dry ; few would be willing to come forward as research workers when so little consideration is shown to them. There is also the question of continuity, which is an all-important factor in medical research. Indiscriminate dismissal or changes in personnel would make a breaking in the chain of inquiry, resulting in loss of money and time.

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Of a different character is the recommendation of the General Purposes Sub-Committee on Retrenchment of the Government of India that the post of the Director-General of the Indian Medical Service and that of the Public Health Commissioner should be abolished, and that these two departments should be represented by two

junior officers, designated Medical Adviser and Public Health Adviser to the Government of India. In so much as they represent prize posts for the I. M. S., they will be regretted by the I. M. S. fraternity. (We find the Indian Medical Gazette quick to take up the cudgels on behalf of these appointments being retained). But for our part we cannot agree that their abolition presents a "most serious threat to the present and future of medicine in India." We are inclined to go further than the Retrenchment Committee who have stated that these duties can be efficiently discharged by two junior officers, as we feel that these posts can safely be abolished. It would not, in our opinion, result in any serious damage to medicine in India at the present time, and so far as the future is concerned, if a system of federation is contemplated for India, then surely medicine will gain in provincial importance, making such central offices as these of the Director-General of the Indian Medical Service and the Public Health Commissioner for India even more unnecessary. It is pointed out by our contemporary that the actual cost of the whole of these two departments is less than three lakhs of rupees so that if this suggestion is carried out the immediate saving, even on paper, will be negligible and the result will be a considerable financial loss on the medical stores department alone, and the complete shipwrecking of medical organisation, in all its branches, in India. Presumably the Retrenchment Committee were alive to this aspect of the case and did not consider the fears of our contemporary justified. On the other hand, we would point out that the Inchcape Committee recommended the abolition of the post of Public Health Commissioner with the Government of India, though it will be noted that, far from acting on this recommendation, the Government have seen fit to raise the status of this office from that of Colonel to Major General. This officer spends several months every year out of India, and there would appear to be little or nothing for him to do. In regard to the Director General, I. M. S., certainly on the civil side there appears to be no justification for the maintenance of such a post. The Indian Medical Gazette has endeavoured to make out a case for the retention of these two offices, but to our mind it has failed lamentably in this endeavour. Its vague record of matters dealt with by these offices is quite unconvincing, and it would seem that the chief duty of one is to serve on the committees of various institutions and of the other to attend the Health Committee of the League of Nations, to what visible advantage it is not known.

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We wonder whether the Retrenchment Committee considered the position of the five medical stores, of which only two are manufacturing pharmaceutical preparations. For this purpose an Assistant Director-general, I. M. S. (Medical Stores) is maintained, which, to say the least, is a costly arrangement without sufficient warrant. Again there are about seven senior I. M. S. Officers with the Government of India in the Department of Health, Education and Lands, where the work is barely enough for four. So far as retrenchment in civil hospitals is concerned, a great deal of money could be saved by replacing I. M. S. officers by well qualified honorary workers—an experiment that has met with considerable success in Bombay.

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While on the subject of retrenchment, it occurs to us that although Sir Geo. Schuster declared that provision had been made in the budget for the cost of the proposed Indian Medical Council, we do not see, in the face of all the acute financial troubles with which he is beset, how he can hope to meet the expenses of such an organisation. However, that is his concern. Meantime, the various measures of the bill that has been circulated form the subject of keen discussion in all medical circles, and the Indian Medical Association has been energetically occupied in obtaining the views of its various constituents from all over India. As a result it has been able to draw up a very composite criticism that may be claimed to be the authoritative opinion of the independent medical profession in India. On the broad issues there is no divergency of opinion, for it is unanimously held that the Council must have real authority, it must be free from official dominance, it must be contrived for the real benefit of the country and of medical practitioners of this country, and there must be international reciprocity in the recognition of medical degrees. Further, it must be effective in controlling the standards of medical education and in advancing and protecting the interests of the medical profession in the country. If these objects are achieved, there will be little quarrel over matters of detail and we shall see the medical profession in India enter upon a new era of virile development.

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We publish elsewhere the resolutions passed by the Bombay Medical Union regarding an advertisement inviting applications for the post of Professor of Pathology in the Grant Medical College. This is one of the most important posts in a medical institution of this kind; and if the Government want a really able man, the terms and remuneration must be made adequate to the high qualifications required. If a competent man is appointed on a low level of salary, he would invariably look to supplement his income by private practice, and the interests of teaching and research would suffer. We therefore feel that the representations of the Bombay Medical Union should be given careful consideration.

Plight of Bombay Hospitals

During the governorship of SIR LESLIE WILSON (1923-28) a census of the total hospital accommodation in the city was taken and it was discovered that the total number of beds was 2,058 or 2·2 per thousand of the population, which was totally inadequate for the requirements of the city. A committee was appointed and it recommended that the hospital accommodation should be enlarged by 2,000 additional beds. The immediate provision of the accommodation was considered outside the range of the Government or the Municipality and it was decided to make provision for 850 beds as the first instalment of the scheme by the addition of 300 beds to the J. J. group of hospitals and 550 beds in the municipal hospitals.

The initial expenditure on the provision of these 850 beds was estimated at Rs. 71,00,000. and a fund called the SIR LESLIE WILSON Hospital Fund was started with SIR NESS WADIA as Chairman which post he held for four years. During that period the Hospital Fund, with the aid of the Government and the Municipality, added 224 beds to the existing accommodation and built a dental school and quarters for nurses, staff etc, at a total cost of Rs. 19,21,000. The Government themselves increased the accommodation in the G. T. Hospital from 120 to 266 beds and provided the Yellapa Balaram pavilion of 104 beds in the J. J. group.

Further, at the instance of SIR NESS WADIA and his brother MR. C. N. WADIA, two new hospitals were constructed, *viz.*, Nowrosji Wadia Maternity Hospital and Bai Jerbai Wadia Hospital for Children, both the Government and the Municipality contributing substantially towards the cost. Anticipating the difficulty of maintenance, the Municipal Corporation did not wish to proceed with further extension as they themselves had built and opened in 1926, the K. E. M. Hospital of 354 beds with a further possibility of expansion to 400 beds. The Municipality had also made other small extensions adding a further 135 beds. The total accommodation had thus been increased to 2,856 beds or about 3 per thousand of the population and the stigma attached to this great city of Bombay for not having adequate hospital accommodation had been removed.

While the Municipality had fully discharged its obligations regarding the provision and maintenance of hospital accommodation, the Government stated in April, 1931, that owing to financial stringency they could not provide the recurring cost of maintenance of 344 beds in the different hospitals, which cost annually Rs. 4,06,000 and consequently the beds were not being utilised. This is the position in Bombay at present. When the Government asked the Hospital Fund to help them to build the extensions they gave an assurance to maintain them. The then Governor SIR LESLIE WILSON in the course of his speech on the occasion of a foundation stone laying ceremony in February, 1923 referring to the Government's obligations had stated: "The responsibility for extra medical relief in Bombay rested wholly and entirely on the Municipal Corporation and on the Government, and the Fund was really brought into being in order to enable the Government to assist the Corporation in carrying out this duty. In addition to that, the Government have undertaken to meet the actual maintenance charges of the new extensions including the Balaram pavilion which are estimated roughly to amount to Rs. 6,00,000 but it is impossible for the Government to do more than say that they will do all that lies in their power to carry out this guarantee.

In the future, the policy of the Government will be largely guided even more than it is to-day, by the wishes of the Legislative Council which will interpret the wishes of the people of Bombay City and Presidency. There is no reason to suppose that the public in the years that are ahead will be less anxious to maintain their medical institutions in a high state of efficiency than they are to-day. In fact, the probabilities, I am happy to realise, appear to me to lie entirely in the opposite direction, and I feel confident that we can go forward with our schemes of expansion resting upon posterity to find the means to maintain the institutions which we shall have handed down to them.

The Government further got this assurance confirmed by the Bombay Legislative Council in their giving approval to the scheme. I would here like to know if, as SIR LESLIE WILSON promised, this specific question had lately again been before the Bombay Legislative Council and if that Council had refused funds for utilising the beds in all the extensions. That modified guarantee I considered sufficient, and I used that guarantee of the Government when I appealed to the public on behalf of the Hospital Fund for assistance, and the public responded nobly.

I am distressed more than I could tell you that modified guarantee is not being fulfilled, and the extensions then made at a cost of 19 lakhs of rupees to the public are now mere brick and mortar lying idle. I, therefore, tender through you, gentlemen, to the public my sincere apologies for the impossible position in which I am placed as past Chairman of the then Hospital Fund for the assurance I had given them when they

came forward to subscribe so liberally. It is a source of great distress to me, and I hope the Government of Bombay will reconsider their decision and try to carry out the obligations they undertook when SIR LESLIE WILSON was Governor of Bombay.

It is a pity that owing to world crisis the finances of the country as a whole and of the Bombay Presidency in particular have come into this dire state. But I would rather that every further kind of retrenchment was made than let the poor sick and suffering denied the assistance when they are ill and require to be looked after in hospitals. I wish the laws of this country would allow some kind of sweepstake to be started, like the Irish Hospital Sweep-stake, which has done so well and has not only enabled the Irish people to put their hospitals on a sound footing, but also to a certain extent endow them towards the cost of maintenance.

I am afraid, under the present laws, it is not possible for a sweep-stake of this kind to be started here under the auspices of the Government. But there is still one way in which, I may say, relief can even now be afforded to hospitals, and that is by some arrangement with the military authorities, who are keeping their hospitals with full staff of doctors and nurses on a war footing. In peace times, they have not got enough work to do. Cannot some arrangement be made by which the services of these doctors and nurses be utilised to relieve the sick and suffering in the other hospitals of Bombay, or by throwing the Military Hospitals open for other sick patients ?

My friend, the Mayor of Bombay, whom I see here has opened a fund with the object of assisting Government in opening up the beds that are now closed. I am afraid, the public of Bombay will not generously respond to this appeal in the present time on account of financial stringency and the heavy taxation levied both by the Government as well as the Municipality, also through want of confidence in the pledged word of the previous Governor. However, I do hope that the principal men of this beautiful city of ours will put their heads together and find out some solution of the tangle. I think, that unless the Government make some effort to carry out the undertaking given by SIR LESIE WILSON in 1928 the public will not quickly respond to this appeal.

It must be remembered that the public of Bombay, for the last 25 years or more, have been subscribing very generously to the various Hospital Nursing Associations like the J. J. Hospital Nursing Association, the E. C. Hospital Nursing Association and the G. T. Hospital Nursing Association, and I believe something like a sum of Rs. 81,000 a year is being distributed by these Associations, being half the cost of nursing in these hospitals. So my friend the Mayor will see that the public of Bombay are not behind when reasonable appeal is made to them for the hospitals in Bombay. It will also interest you to know that the addition of the K. E. M. Hospital, the two Wadia Hospitals, and the few beds that the Government have utilised from additions made jointly with the Hosptial Fund have made a great difference in the health statistics of the city, and now this beautiful city can lay claim of having the lowest mortality figure in India. *

* Synopsis of a lecture delivered by SIR NESS WADIA at the Bombay Rotary Club on Tuesday, the 8th December, 1931.

Malaria in Calcutta

Crusade Against Mosquitoes.

After a lengthy debate the Calcutta Corporation at its meeting on Monday, the 5th October last, ultimately accepted the mosquito control scheme for Calcutta as prepared by DR. K. S. RAY. The scheme which was outlined in January 1931 issue of the Indian Medical World (the then official organ of the Indian Medical Association), will involve an expenditure of Rs. 1,20,000 a year. For 32 wards including the added areas it is proposed to have four gangs each consisting of 2 coolies. These four gangs would be in charge of a sub-inspector who would be in charge of the ward. The ward would be divided into four sections, each section to be under one gang. These 32 wards would be divided into four districts each district in charge of an Inspector. It is also proposed to have a Chief Inspector to supervise the entire area. Estimated costs are in salaries about Rs. 1,00,000 and other expenses Rs. 12,000, the total being Rs. 1,20,000.

The Malaria Scare.

A conference of representatives of a number of local bodies, including the Calcutta Corporation, the Bengal Chamber of Commerce, the District Boards of Howrah and 24 Parganas and the Bengal Nagpur Railway met at the Bengal Secretariat on the 23rd November, under the chairmanship of the Minister in charge, Local Self-Government and discussed the question as to which of the two—Anopheles ludlowi and Anopheles stephensi—was more dangerous and responsible for the malaria epidemic in Bombay and Calcutta.

Opinions differed as to the degree of danger with regard to Anopheles ludlowi. The Director

of Public Health, the Health Officer of the Calcutta Corporation, and the Director of the Rockefeller Institute were of opinion that Anopheles ludlowi was not as dangerous as Anopheles stephensi, while the Malariologist of the Bengal Nagpur Railway and several others were of opinion that there was little danger from Anopheles stephensi.

After a good deal of discussion, all medical men, however, agreed that Anopheles stephensi was more dangerous. The Minister for Local Self-Government pointed out that the matter purely and materially affected Calcutta only if it was agreed upon that immediate danger was expected from Anopheles stephensi and, therefore, there was no reason why other local bodies should be called upon to co-ordinate and join hands with the Calcutta Corporation in this matter.

The Corporation, however, decided to await the arrival of MAJOR COVELL, Assistant Director of the Malaria Survey of India and act up to his advice on the subject. In the meantime, the Corporation would go on with the work already commenced in this connection.

It is understood, the Government will decide the line of action according to the advice of MAJOR COVELL.

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A deputation from the Bengal Chamber of Commerce in the course of the recent interview with the Governor sketched a minimum scheme essential measures costing over three lakhs annually, as a sum of Rs. 1,20,000 budgetted by the Calcutta Corporation was considered quite inadequate to fight the menance.

Government was found to be sympathetic. Private agencies, assisted by Government and British commercial bodies are, however, carrying on a campaign in the suburbs, particularly in the Majerhat swamps, which is the breeding ground of the Anopheles ludlowi. An aeroplane was used for spraying purposes but the Police authorities stopped this after the first trip.

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The Mayor's (DR. B. C. ROY) statement

For some time past, one of the Calcutta journals has been responsible for telling the rate-payers of Calcutta that the City was in imminent danger of being over-run by a mosquito of very virulent type—Anopheles ludlowi. The residents of Calcutta know that from the month of August right through the winter months the town is infested by mosquitoes of various types—of which Anopheles stephensi is the commonest carrier of malarial parasites. But from May last the appearance of Anopheles ludlowi seems to scare a large number of people. From that month onwards the Public Health Departments of the Government and of the Corporation have been watching the progress of events very carefully and an expert Committee has been formed to keep watch on them. The Corporation has a Mosquito Brigade which has also been working hard to secure eradication of mosquitoes. The Mosquito Control Scheme has been sanctioned and will be working soon.

In the meantime a deputation waited on His Excellency the Governor whose members tried to prove that malaria is on the increase, that an epidemic is threatening, that the Calcutta Corporation has been doing nothing while the "wave of disease is rising" that there "is singularly little information available in the Corporation regarding this disease". Figures were given by the deputationists regarding the number of cases treated in the hospitals and the Government were asked to give effect to the provisions of the Epidemic Diseases Act of 1897.

The Minister in charge, Local Self-Government, called a Conference on the 23rd November last at which the deputationists, the Bengal Government Health Department and the members of the Health Committee of the Corporation were represented.

The Corporation members produced their own records to show that the "wave of disease was not on the increase", that no emergency had arisen and no scare need be spread. In fact, this year, the incidence of malaria compared to previous years, is not excessive. This Conference was generally of opinion that the danger from Anopeles ludlowi was exaggerated in the press, that enquiries show that the breeding places of these mosquitoes have actually receded from Calcutta instead of coming nearer, that the danger of infection by this species is practically negligible and that the only danger before us is the attack from Anopheles stephensi which is a local breed and has been responsible for the attacks of malaria in Calcutta for some years.

The Health Department of the Corporation is fully alive to the necessity of controlling the growth and multiplication of this species of mosquitoes and this requires systematic and consistent efforts on the part of the Corporation authorities and an intelligent co-operation from the rate-payers. If occasion arises, the Corporation will not hesitate to take all necessary steps and spend any amount of money necessary for the control of malaria and mosquitoes. But the Corporation refuses to be stampeded into undertaking useless expenditure on fruitless ventures.

The Health Department appeals to the railways and steamer authorities to try and prevent the importation of Anopheles ludlowi from outlying areas by examination and disinfection of the railway carriages, boats and steamers.

I owe a duty to the public not only as a practitioner of medicine but also as a holder of a responsible post in the city to tell that there is no need of a great scare regarding infection from malaria.

Prevention of Malaria Infection

The Lancet gives a record of the successful prevention of malaria infection by plasmoquine among a group of investigators consisting of expert malariologists and medical students who volunteered to get infected in order to enable them to test the efficacy of the drug.

The result of a number of trials have proved successful and tend to establish the fact that plasmoquine prevents mosquito-borne malaria infection among those who take the preparation in prophylactic doses.

The Lancet says that the synthetic preparation should have a noteworthy influence on future antimalaria policy in the world generally, for they indicate that, from now onward, chemoprophylaxis and chemotherapy may play a larger part in the control of malaria than they have done hitherto.

"Everyone will remember that after ROSS's discovery of the mosquito cycle of the malaria parasite, KOCH, and later GRASSI, believed that the best hope of overcoming the disease on a large scale lay in an endeavour to break the epidemiological chain by treating the human host rather than by measures aiming at destroying the insect carrier.

"That view has since received support from the success which has attended chemotherapeutic campaigns against kala azar and bilharziasis, but as regards malaria field experiments on a similar plan have always failed because taking quinine, although it cures developed attacks, does not prevent either man or mosquitoes from becoming infected. If it is true that in addition to quinine, a drug has now become available which, when taken in non-toxic doses by healthy people, prevents their infection, and when taken by malaria patients prevents the development of the parasite in the mosquitoes which feed upon them, it is reasonable to suppose that a repetition of KOCH'S chemotherapeutic field trials might have a very different result.

"On a smaller scale, of course, the benefits of a drug which prevents malarial infection are clear. For example malaria is the cause of much sickness and many deaths among officers, crew and passengers of ships trading to Africa, India and the Far East. During the years 1918 to 1921 there were at least 20 deaths of seamen from acute malarial attacks during homeward voyages from these countries and at least 65 from recurrences after arrival in England.

"In one line of steamers trading out of Liverpool no fewer than 531 cases of malaria occurred in the course of 12 months, and instances are on record in which during homeward voyages from Africa or India, the disease attacked all except two or three of the whole ship's company. As these merchant ships seldom stay more than few days and nights in malarious ports it would be easy to arrange for all concerned to take the prophylactic doses during those relatively short periods and for a few days thereafter.

"It is worth while, in this connexion appositely, to explain, in the light of the new knowledge, 'a prophylactic trial' of plasmoquine which DR. OTTO FISCHER was deputed by the Institute of Tropical Diseases, Hamburg, to conduct in April 1926, on a steamship sailing to the East Coast. The details were arranged by PROFESSOR MUHLENS, but not regarding the drug as a true prophylactic, he based them on the view 'that although plasmoquine alone is inadequate as a therapeutic remedy in subtertian malaria some result might be expected from its prophylactic use as cases would be treated in the incipient stage when parasites would be relatively few and easily destroyed.'

"With this object the drug was given in large doses (0·059g) on three consecutive days each week instead of in small doses daily, as should have been done if true prophylaxis was the aim. The method left the 39 participating members of the crew unprotected on four days and nights of each of the nine weeks during which the trial lasted and it is therefore not surprising that six cases of malaria occurred among them.

" It was claimed, however, that this morbidity-rate (15 per cent), indicated a successful result in comparison with the rates of 25 to 30 percent among the crews of two ships which followed the same route and on which the usual "quinine prophylaxis" was in force. Probably the correct explanation of the difference is that the plasmoquine taken by the crew of DR. FISCHER'S ship protected them against infection on three days and nights each week, whilst the quinine taken by the crews of the other ships had no true prophylactic effect."

Some Recent Interesting Therapeutic Applications of Calcium

By DR. EDWARD PODOLSKY, M.D., Brooklyn, N. Y.

Within the past few years the role that calcium plays in metabolism and therapeusis has been claiming the attention of serious laboratory and clinical investigators throughout the world. It is now generally conceded that calcium is an element very essential to the well being of the human organism whose daily requirement of this substance has been estimated to be between ·4 and ·8 of a grm a day. The calcium ions of the blood form a part of the balanced system of ions, which, reflected in a similar balance in the tissues, controls the degree of irritability of all muscle and nerve tissues of the body. With the exception of bone (which is the reservoir of calcium and phosph ate) calcium is distributed evenly throughout the body tissues.

Many years ago VOORHOEVE stated that calcium occupies a dominant role in the physiology and pathology of metabolism. Thirty years ago LOEW demonstrated that each cell nucleus contains a quantity of lime and that the cell dies as soon as this calcium is depleted or is precipitated out of its combination. Subsequent investigators have confirmed that calciprivia in the human system is of very serious import and that many diseased conditions are directly attributable to this deficiency. An abundance of calcium in the diet though it is of some value must be supplemented with calcium medication.

Among the most prominent conditions which take a heavy toll of calcium is pregnancy, and for many years the common condition of teeth decay was noted in many pregnant women. Calcium therapy during pregnancy has been found in previous times to aid much in the prevention of caries. Recently, evidence has been gathered which seems to indicate that the administration of calcium during pregnancy not only prevents tooth destruction but also tends to prevent rickets in the offspring. It is a well known fact that among Northern peoples like the Finns, who consume four times as much calcium as do Americans, the incidence of rickets is much lower among tham than among us in this country. The effect of hypocalcemia during pregnancy is much more serious than is usually admitted. Otosclerosis is one of the most intractible conditions to combat and is favored by the calcium depletion of pregnancy.

STEIN (Weiner klin. Woch, April 10, 1930) showed that one of the most constant and important alterations associated with otosclerosis is a lowering of the blood-calcium and a raising of the cholesterol levels. STEIN confirmed the findings of others when he showed in addition that otosclerotic symptoms are likely to be much aggravated during pregnancy. The most rational and effective treatment for this condition is the treatment first advocated by LEICHRT and later employed by STEIN. This consists of the intravenous administration of calcium in the form of the salt most suitable for this form of therapy, namely calcium gluconate (Sandoz) to eliminate any dangerous sloughing caused by the chloride. The regime consists of three injections the first week and one each week thereafter. In pregnant women this treatment should be continued throughout gestation.

It is, of course, rather difficult to treat otosclerosis satisfactorily. There is quite an incidence of vaso-neurosis in many cases which require definite circulatory stimulation, and caffeine is admirable in this respect. Calcium's part in controlling the disagreeable symptoms is one to be thought of and taken advantage of.

Chorea in children is another puzzling condition. Among investigators WARNER (Lancet, Feb. 15,1931) has shown that in chorea the nerve cells are bathed in fluid which is from 13 to 15 per cent, deficient in calcium content. This alone, he believes, is sufficient to raise to an abnormal degree the excitability of the nerve cells and helps to explain some of the characteristic features of chorea.

While it is admitted that chorea is often associa ted with infectious processes and rheumatism WARNER makes the point that the infectious condition itself may be due to calcium deficiency. This view seems to be supported by the observation that when the calcium deficiency has been overcome by the administration of calcium the chorea subsides. Calcium may be given intravenously in the first stages of the disease to gain quick control over the symptoms and continued orally as a prophylactic measure for several months after the disease has been got under control.

The non-specific leucorrheas are often times very puzzling. RODESCOURT (Zbl. Gynak. No. 7, 1931) is of the opinion that in certain forms of non-specific leucorrhea caused by vagotonia or sympathicotonia, by asthenia, hypoplasia, infantilism, anemia and other general systemic diseases, internal calcium treatment is of value. Local treatment is often missed by patients in these cases. In addition to the internal calcium medication it is desirable that the vaginal mucosa be treated with tampons saturated with the contents of a 10 c.c. ampoule of calcium gluconate. On the average, treatment is continued for two to three weeks, and the results are favourable.

Hypertension is one of the major problems of medicine. It is a condition for which many remedies are being offered at the present time, and none of these can be said to be a specific.

Many theories for increased arterial tension are offered, and one of the latest and most interesting is that by STEPHENS (Prescriber, February 1931.) He defines bloodpressure as that pressure which is exerted on the blood by the tissues, especially the contractile arteries. The greater the pressure on the blood and its corpuscles, the more handicapped are the movements of the corpuscles.

When a change is effected in the surface tension of the corpuscles, there is a modification of their internal metabolism. Increased basic blood pressure interferes with the metabolism of the body as a whole. It is now generally accepted that sixty per cent of the body weight, excluding water, is composed of calcium. For that reason sixty per cent of the body metabolism is, therefore, the metabolism of and connected with the calcium salts and their assortment into organic compounds and suitable ions. Increased basic pressure, then, is closely associated with deficient calcium metabolism, and it will be found that, in a large number of cases, the administration of calcium salts, together with parathyroid substance, will help to reduce the basic blood pressure.

As a means of inducing artificial leucocytosis calcium gluconate when given intravenously is one of the most efficient drugs in this connection. R. TUNNICLIFF (Journal of Infectious Diseases, February, 1931) has found experimentally that calcium gluconate produced a rise of 78% in the phagocytes and far exceeded that produced by milk, mercurochrome, sodium salicylate, the arsphenamines and the quinine salts, favourite drugs in increasing the number of leucocytes in acute infective processes. An interesting fact is that once the calcium given intravenously has pushed up the leucocytes they can be maintained at their high level by intramuscular injections of the drug, and still later by oral administration.

In the matter of dental caries much can be said for calcium as a means of prevention. As I stated before, the typical American meal is woefully lacking in calcium, and this evil is reflected in the great tendency to dental caries. The more rational among dental practitioners realize that it is not merely dental cleanliness alone which will prevent tooth decay, but a repletion in the quickest possible way of the lime-starved condition which is responsible for the decay. The Eskimoe of northwestern Greenland, as a whole have probably the best teeth of any group of people living to-day. Their calcium intake in diet is exceedingly high.

Civilization and refinement in diet has much to do with habitual calcium starvation and the evil results therefrom. Cases have been reported of the examination of natives of the South Sea Islands, who have never seen a tooth brush nor heard of a dentist. The incidence of dental caries found averages a little over one per cent, while that of Americans averages 90 per cent. The remedy, of course, lies in correcting the lime deficient diet. This alone is not sufficient, however. The additional aid is required of the oral administration of calcium gluconate averaging about 60 grains a day.

The importance of calcium in metabolism and therapeutics is gradually being more and more appreciated. That it is one of the most significant of our correctives is a fact many physicians are now beginning to realize.

Rational Treatment of Cholera

By D. R. DHAR, M. B., D. T. M. (Cal.), M. R. C. P. (Lond.), Calcutta.

While actually treating a large number of cases of cholera, specially at the beginning of an epidemic one is frequently confronted with one particularly serious complication, namely, post-choleraic symptom-complex, commonly known, for the want of a better name, as uraemia. While working in the Infectious Ward of the Carmichael Medical College Hospitals, Calcutta, one began to wonder whether post-choleraic uraemia was an accidental after-effect of the disease or it had some definite bearing on the pathogenesis of cholera. Besides circulatory failure, acidosis, ketosis, damage to the kidney cells by some absorbed toxin in the process of excretion and altered crystalloid and colloid content of blood, there might have been other hitherto unknown factors working at the production of this usually fatal complication. But it appeared to us, all the more important and we entered into the problem because of the fact that most of the cases we lost in cholera were due to this symptom-complex of so-called post-choleraic uraemia. Cases apparently recovered from the acute symptoms of cholera were very often carried away through this complication.

In order to ascertain the inner working and pathogenesis, one had the blood of 66 cholera convalescents examined for the non-protein nitrogen content of their blood. In all of them there was a rise of N. P. N. of blood twice, three times or even more, than normal. This we showed in a previous communication. Naturally one might argue that damage to the kidney cells made their excretion difficult and hence they were retained. But this appears unlikely when one finds that even after such free purging and vomiting as is the rule in all cases of cholera and almost on a starvation dietary there is so much raised non-protein nitrogen content of blood

in even milder cases in whom there could not have been any question of damage to the kidney cells. The question of relative rise of N. P. N. content of blood was also outruled by the fact that these patients were practically in a stage in which the fluid content of their blood were restored to normal as shown by the symptoms and the measurement of the specific gravity of their blood. All the details of these points were clearly dealt in that paper of ours which appeared in the Calcutta Medical Journal, July 1930.

Though there is doubt and controversy as to the exact nature of the toxins absorbed in cases of cholera, it is almost an admitted fact of pathology to-day, that it is the absorption of some complex amines or some such deleterious product from the small intestines which gives rise to the actual symptoms and results of the disease. To speak in short, about the nature of toxin EMMERICH's idea was that the symptom complex of cholera resulted from the absorption of nitrites formed in the small intestine by the action of the cholera bacilli on the nitrates of food. Nitrites are said to be present in the bowels, urine and vomit of cholera cases. (Bowel diseases in the tropics—L. Rogers. Page 62). ACTON of the Calcutta School of Tropical Medicine is said to have isolated an amine which according to him is responsible for the symptoms of cholera. In our own observations the rapid progress of symptoms and the intense peripheral vasomotor paresis leave very little room for doubt that something of the nature of histamine is absorbed from the affected small intestine. Though we cannot produce any direct evidence to support our contention but the fact that out of 37 cases of cholera in pregnant women in Roger's Series all resulted in miscarriage and the same termination of pregnancy followed in our series of 7 cases, it suggests very strongly that some substances of the nature of amines are absorbed, particularly the signs and symptoms of cholera when correlated with the above facts one is all the more, convinced about the nature of the toxin absorbed. There again another piece of indirect evidence is supplied by the finding that a small dose of an extract of intestinal mucous membrane added to a non-lethal dose of vibrios will render them lethal intraperitoneally. (Recent Advances in Tropical Medicine—Rogers. page 185). This again lends support to the view that absorption of some product of protein disintegration gives rise to the signs and symptoms of cholera.

Before one took any serious notice of the high N. P. N. content of blood, determined by biochemists in the Laboratory, one found clinically that those cases who were in the incipient stage of uraemia, benifitted by regular morning and evening ounce doses of castor oil. Even cases who had passed rapidly into the collapsed stage and who were left long in the collapsed condition for want of treatment, when come into the stage of reaction after intravenous saline infusion and once the vascular equilibrium was established, castor oil averted fatal uraemia in most cases. Castor oil was used for its constipating after effect and simplicity of action ; but how far the latter point is a fact tenable in the light of action of castor oil in the intestines, one would leave the pharmacologists to decide. Before our attention was directed to the high N. P. N. content of blood of cholera cases, we substituted a concentrated solution of Mag. Sulph and Sodii Sulph for Oil Ricini with somewhat better results, in the treatment of the post-choleraic symptom-complex better known as uraemia.

Now-a-days all our efforts are directed, in the modern methods of treatment, to the removal of the pathogenic factor of the disease. The symptoms are the mere effects manifested by the susceptible human body engaged in a defensive fight with the bacteria. To uproot the main cause which has given rise to symptoms is certainly a better and more rational form of treatment than only to attend to the symptoms as they arise. Various types of intravenous saline infusions in cholera only go to combat a symptom which caused many deaths formerly. It does not remove the cause. Absorption from the small intestine being more brisk than from the large gut and probably due to the effects enumerated above, one constantly notices that an obstruction of the small gut is much more rapidly fatal and symptoms start much more quickly than when the obstruction is situated in large gut or lower down. Cholera being a disease of the small intestines whence the absorption being very quick, results in so rapid onset and progress of signs and symptoms.

In bacillary dysentery, an acute infection of the large intestine, inspite of ulceration, frequent bloody stools and toxaemia, we exhibit Sodi Sulph and Mag Sulph with gratifying results. The rationale of the above method is probably best illustrated in the words of FRANKLIN. C. MCLEAN (in Osler's Modern Medicine. Page 689, Vol. 1). "Repeated doses of Na_2SO_4 maintain the contents of the intestine in a liquid state, limit absorption of toxins, clear the intestine of the inflammatory exudate and the toxic products of the dysentery bacillus." In addition to this some of the Na_2SO_4 being absorbed probably so change Ph. of the portal blood as to render the effect of the absorbed toxin comparatively innocuous. In this infection of the large gut whence the absorption is comparatively slow, we find it rational to exhibit saline purges, but when the question of cholera comes into our mind, inspite of the high percentage of post choleraic uraemia, the raised N. P. N. content of blood, and the rapid absorption of toxins, the frequent liquid evacuations of cholera, an effort on the part of the body to get rid of the absorbed toxin and that free in the gut, scare us so much

that we forget and fail in our fear and hurry to see to the rational treatment which should to my mind consist in the exhibition of concentrated solutions of Mag Sulph and Sodii Sulph. According to LIEFMAN (Page 61, Bowel Dis. Trop) 90% Mag Sulph solution will agglutinate most cholera bacilli. In the laboratory too, we have found that the cholera vibrios are killed at a lower concentration of the above solutions than bacilli Shiga or Flexner. When one finds that nearly 4 ounces of Mag Sulph and 5 ounces of Na_2SO_4 can be dissolved in 100 ccs. of water one also can naturally suppose that when given per mouth a concentration of salt solution can be reached in the small intestine where the vibrios will also be agglutinated. We have much experimental data to support the above contention.

But the main action of these salts are exerted not in any specific way but by the raised osmotic tension of the contents of the intestine, and thus preventing absorption.

Before the purging and vomiting, enabling us to come to a diagnosis of cholera, start there is considerable amount of toxins already absorbed from the rapidly absorping surfaces of the small intestine, over which salts per mouth may have very little effect. This has also been our experience while treating cases in the above principles. But so long these patients can swallow any remedy, it is worth giving a few doses of salt before the intravenous saline infusion is given. The reason is that other channels of excretion of the absorbed toxin being absent, as soon as the vascular equilibrium is established, the usual absorption of toxin, in the stage of reaction, is prevented and according to the exosmotic tension of the contents, absorbed toxins come out into the intestines to be excreted through the stools. Kaolin, calcium permanganate and all other remedies have got their proper place in the treatment of cholera, but none of them seem to act so easily on a physical basis.

A brief analysis of the action of these salts in the different stages of cholera one would like to give.

During the early stages when salts are exhibited, the exosmotic tension of the intestinal contents being raised toxins cannot be absorbed and are excreted in the stools. Later on, when the loss of fluid and salts is very great, the body is dehydrated, the parched body eagerly absorbs the last drop of liquid from the intestines and along with it much toxin and thus the collapse is hastened. But if salts are present in the gut then this critical absorption is prevented, and the toxins in the way towards absorption even in the walls of the gut are drawn out. Still later when the patient is in the collapsed stage, we give intravenous saline infusion. Here we have a constant risk of absorption of some toxin from the intestines as the circulation is restored to normal (Bowel Diseases in the Tropics—Rogers. Page 93). This can easily be prevented by the proper exhibition of saline purges. Here one can add that the repeated collapses due to a large dose of toxin at the beginning of the disease, can also be favourably influenced by salts, because as the kidneys do not functionate for hours and days the intestinal tract is the only path through which some of the toxins can be got rid of. Saline purges are likely to be of greater use in those cases in which constant absorption of small amounts of toxins is going on, and repeated collapses occur after an interval of several hours. These usually not very virulent but slow persistent cases of cholera can be beneficially influenced by salts as the latter will help in the excretion of substances which were giving rise to the mischief.

Those having experience in the treatment of cholera know well that the tongue forms the best guide in cases of impending uraemia. Cases apparently towards recovery often die of uraemia if the secretion of urine is not established and generally in these cases the tongue is coated. Salts particularly Sodii Sulph in a concentrated solution given in ½ an ounce doses often does good in these cases. The principal advantage of this salt treatment is practically absence of uraemia, specially when treatment is instituted from the very beginning of the disease. Unluckily in our hospital generally cholera cases come in a state of collapse for hours together and thus already such an overdose of toxin is absorbed and the vital organs are irrecoverably lost, that no treatment is of much benefit in these cases.

In conclusion, one would like to add a word of explanation to the argument brought forward against this method of treatment. They point out that in cholera there is much dehydration, exhibition of saline purges will dehydrate it further. But my answer which is corroborated by actual findings is that even when we do not administer saline purges, the body through its natural process of excretion of toxins pass into the collapsed stage through purging, vomiting and consequent loss of fluid. What I am trying to do is just to assist nature in her normal process of excretion. Under ordinary circumstances, we combat the dehydration by taking the specific gravity of blood and transfusion of saline solution. But under saline purgative treatment as the toxins are easily got rid of, the repeated administration of saline in quickly succeeding collapses are very rare. I venture to suggest, that if from the very beginning of cholera Sodii Sulph and Mag Sulph treatment is instituted and collapse is combated by proper intravenous saline infusion cholera will lose much of its horror.

How to Popularise the Treatment of Malaria

(Extracts from the Report of the Drugs Enquiry Committee 1930-31 on the Quinine Policy.)

That quinine is one of the most needed drugs from the point of view of the Indian public is obvious from the fact that it is used in the prophylaxis and treatment of malaria, the most widespread disease in the country.

It has been estimated that there are in India 100,000,000 untreated sufferers from malaria and a little over 8,000,000 receiving complete or partial treatment. These figures, though not necessarily accurate, are however sufficient to show to what an extent the people suffer from that disease. In addition to the high mortality there is the incapacity to individuals, both temporary and permanent. The economic loss and the consequent penalty, which has to be paid by the country as a whole, is tremendous.

It will be of interest to see what the consumption of quinine in India per head is, as compared with other countries in which a high incidence of malaria occurs. In Italy the consumption is 16 grains per head, in Greece 24 grains whereas in India it is only 3½ grains. The figures for some of the highly malarious provinces in India show even a lower rate of consumption. For instance, if we examine the different divisions of the Bengal Presidency, which is perhaps the most heavily infected area, the consumption per head in Burdwan is 1·07 grains, the Presidency division 1·31 grains, Rajshahi 1·07 grains, Dacca 1·50 grains, and Chittagong 2·6 grains. These figures speak for themselves and show how inadequate the supply of quinine in this country is.

The estimated figures for the requirements of the country produced from different sources may vary considerably but all alike demonstrate one point, *viz.*, the hopeless insufficiency of the present supplies of quinine.

The annual consumption of quinine in India at present is nearly 200,000 lb. derived from two sources :

(*a*) There are in India two State owned cinchona plantations with factories for the production of quinine. One of the plantations is situated at Mungpoo in the Darjeeling district in Bengal, and the other at Naduvattam, near Ootacamund in the Nilgiris. Besides these there are also plantations in Burma. There were a number of privately owned plantations in the Nilgiris, but these have dwindled during recent years to almost nothing.

(*b*) As the combined production of quinine by the two factories does not exceed 70,000 lb. annually, large quantities of this drug have to be inported.

The following table shows the amount of quinine derived from the two sources, *i.e.*, manufactured in India and imported into India :

Year	Mungpoo	Madras	Imported	Total
1927-28 ...	(46,844	21,688)	113,637	182,169
	68,532			
1928-29	(41,368	23,065)	133,795	198,228
	64,433			
1929-30	44,140	...	...	...

The reason for the low production of quinine in India is the small area under cinchona cultivation. The following table gives the figures for the two plantations :

	Acs.	
Mungpoo (Bengal)	2,877·3	Actually under plan-
Naduvattam (Madras)	2,035	tation, though the total area is much bigger.

The species of cinchona grown in the Bengal and Naduvattam plantations are C. ledgeriana, C. succirubra, and a hybrid of these two species, C. robusta. This undoubtedly is a very small quantity for the needs of such a large country as India, and the general trend of evidence before the Committee was that much more could be done by the Government to produce quinine in India on a much larger scale and to cheapen its price.

There are, however, difficulties in the way of production of the particular bark suited for the extraction of quinine.

A great deal of attention was directed to matters pertaining to cinchona in India in the evidence given before the Royal Commission on Agriculture. Eminent witnesses including SIR DAVID PRAIN and COLONEL (new Major-General) GRAHAM, emphasized particularly the need for taking active steps for increasing the area under cinchona cultivation. The question of its centralization was also brought forward. The evidence showed that for many years there has been comparatively little advance in the extension of cinchona cultivation in India, although large tracts suitable for such plantations are available. The question of centralization had also been considered some years ago and the decision arrived at was that neither complete centralization nor provincialization was possible. The Royal Commission on Agriculture fully comprehended the importance of a sufficient supply of quinine to the public and made far-reaching recommendations in that direction. Influenced by the urgent need for its development, the Commission also recommended that the subject should be made central. Irrespec-

tive of the manner in which the Provincial Governments producing quinine had carried out their obligations in the past this was considered essential. The imperative need for quinine has been generally felt in all Provinces and, as it can only be produced in a few, its production and distribution are properly the function of the Central Government. This was the view which was accepted by the Commission and which it urged for the consideration of the Government. Even with all this force of opinion behind it, the internal quinine difficulties of India have not been solved. During the meeting of the Agricultural Conference in Simla in 1926, a Committee of representatives of different Provincial Governments concerned in cinchona plantation was convened with a view to advising the Government how far and in what direction the recommendations of the Royal Commission could be carried out. While examining the position, the Committee was at once brought face to face with the financial aspects of the problem of stocks, and its advice reflects the difficulty of finding a via media between the modern tendency to estimate all values in terms of cash and the older philanthropic object with which the Cinchona Department was originally started. The Committee recommended a scheme by which all profits which might accrue would be equally shared by all users of quinine, and appealed for co-operation in tho larger interests of public health. Nothing of practical value resulted from the discussion which took place, the financial consideration apparently outweighing the interests of public health. Even the visit of the Malaria Commission of the League of Nations, who put quinine and its proper use in the forefront of the methods of attacking this disease, did not help very much to further the interests of quinine production in this country and its distribution to the masses.

The foregoing discussion regarding causes of the backward condition of cinchona plantation will show why the country has to be dependent upon foreign sources of supply for which she has to pay very heavily, and why it has to submit to foreign domination regarding the fixation of the price of quinine. It is common knowledge that the world price of quinine is controlled by a powerful syndicate known as the Kina Bureau. Although from time to time many quinine factories have tried to become independent, they have always ended up by being subjugated. Even in 1928 many of the quinine dealers attempted to break away from the official prices determined by the Kina Bureau. It was for this reason that it became possible at that time to get supplies of quinine in the open market at rates below those officially sanctioned, and by avenues different from those by which they used to reach the retailer. The result was that many old, established and reputable firms who carried on big business and who would not sell under the agreed price suffered losses and accumulated large stocks. This might suggest over production of quinine in the world and yet, one knows that India alone could consume the whole of the world's annual production, if the prices were within the means of the masses, or if the Government undertook a distribution of quinine commensurate with the needs of the population. The 'Kina Bureau' has, however, triumphed and has been successful in effecting regulated and gradual reduction of cinchona areas to proportions fitted to what the world can afford to buy and not what it really needs. In this way the price would be maintained at a level that would leave a profit both for the plantations and the factories.

It follows from all this that it would be absolutely futile to expect any large reduction in the price of quinine under the present conditions. So powerful is the organization known as Kina Bureau, and so efficient is the entire arrangement that even the great world-wide depression during recent years has not affected the prices of quinine and they still remain at Rs. 18 per pound which was the price fixed so long ago as 1926. This, in spite of the fact that it is being produced in quantity in excess of the world's actual demand though the actual stocks are still well below the world's real requirements, is the result of production and sale under control.

The Cinchona Department, no doubt, is congratulating itself for not being affected by the depression on account of agreement with the Kina Bureau, but from the point of view of the health of the people the matter is far from satisfactory. Although by reason of its climatic conditions it will perhaps be difficult for any other country in the world, except South America, to compete with Java so far as cinchona production is concerned, we have no doubt that the Indian plantations could in time be enlarged sufficiently to make India entirely independent of foreign supplies of quinine. The Government of India is the only quinine-producing organization which can successfully break away from the Bureau if it wants to do so.

The next question which remains is, what are the reasons for the great diversity between the amount of quinine necessary to cope with malaria and the amount which is actually consumed? There is obviously some powerful factor which is responsible, as otherwise the law of supply and demand would rapidly rectify the shortage. Besides, we have already seen that much more quinine is available than is actually consumed. The factor which militates against the more extended use of quinine is its high price. It is unnecessary to stress here that India is a very poor country and that here people with

their low standard of living cannot afford to buy quinine for treatment at its present price.

The evil which results from a combination of high price and excess of demand over supply is that quinine in this country is one of the most frequently adulterated drugs. We were very greatly impressed by the large number of witnesses in the Punjab and other parts who came forward and denounced in no uncertain terms the quality of quinine sold in India. Quinine tablets, quinine solutions, quinine mixtures, quinine salts—all come in for a good deal of criticism. Some of the unscrupulous traders are undoubtedly making large profits by this criminal fraud on the public. Adulteration is rife ; prescriptions containing quinine in solution, whether made in Government dispensaries or by private chemists and druggists, are said to be frequently dispensed with smaller doses than ordered. Tablets prepared by many firms contain much less quinine than they were stated to contain, and many have none whatever. Samples of tablets were actually purchased and analysed by the Committee which, though marked quinine tablets, proved to contain no quinine at all. Theft by compounders, by dispensing smaller quantities than ordered and by appropriating the balance, is common and is actually within the experience of some of the members of the Committee. It is so easy to remove quantities of appreciable value for which a ready market is available. After going into the matter deeply, we are of opinion that the state of affairs regarding the adulteration of quinine and its preparation is alarmingly serious. The introduction of a Pure Drugs Act may prevent the sale of adulterated quinine and its preparations to some extent, but it will not solve the whole problem. So great is the need for this drug and so pressing the demand, that unless the price of quinine is reduced to bring it within the easy reach of the Indian masses the adulteration and fraud will continue to go on in some form or other. The business is so lucrative that the unscrupulous dealers will take the risk and find some other means of defrauding the public.

The factors operating at present, which are responsible for the present price of quinine, have next to be examined.

The actual cost of production of quinine according to figures supplied to us from the Quinologist Department, Bengal, during the last five years is given in the following table :

	Cost of bark Rs.	Cost of extraction Rs.	Total cost Rs.
1925-26	4·18	2·03	6·21
1926-27	3·84	1·59	5·43
1927-28	4·8	2·72	7·52
1928-29	4·6	2·72	7·32
1929-30	4·83	2·72	7·55

It will be perceived that the Government manufactures quinine at 7·55 rupees per pound at present. The selling price of quinine was fixed at Rs. 24 per pound in November 1924 and at Rs. 18 per pound in May 1926. Since then the price has remained stationary. It would appear that, even after leaving a fair margin of profit, quinine could be sold at about half the price which is being charged for it and this might bring it within the means of the masses to a considerable extent. It should not be forgotten, however, that the above rates are not worked out on commercial basis. All cinchona plantations represent a 'wasting asset' and replanting with or without a period of fallow is essential. Replanted areas rarely yield as much bark as the original plantations ; frequently there is a complete failure. Other factors which have tended to increase the price of the bark during recent years are the rise in wages, and growing indirect charges on account of benefits to labour such as recognition of holidays, medical relief and allowances for the sick, maternity benifits, allowances for births and deaths, education, sanitation, water-supply, etc. When all these factors are taken into account and interest is charged on the capital utilized at the average borrowing rate of the Government it can be imagined that the cost of production of the bark as well as the manufacturing cost will be considerably increased. When plantation is not in bearing, the interest charge is added to the capital at compound interest. The cost price of quinine in Madras, where all these factors are taken into consideration, is not far from the rate fixed by the Kina Bureau at which it is being sold at present.

The Cinchona Department of Bengal may appear to be a paying concern for the report for 1929-30 which shows the valuation profit balance as Rs. 4,53,971-9-3 ; but this notion will soon be dispelled if all the factors described above are accorded due consideration.

From this it is obvious that the large volume of criticism levelled against the Government, by the witnesses who appeared before the Committee, for the maintenance of the price of quinine at a very high level in agreement with the Kina Bureau, is really unfounded and that the Government has excellent reasons to continue to adhere to the price fixed by the Bureau. The Committee, however, feels that inteference is necessary to remedy the present state of affairs. Either the price must be reduced by mass production or research work must be carried out to find out some means of presenting the people of India with quinine, or the total cinchona alkaloids or the cinchona bark at a cost commensurate with the means at their disposal. The Committee is of opinion that, in the interest of public health and of supply of pure quinine to the people of India, steps should be taken to lower the prices of quinine as much as possible.

The only argument against lowering the price of quinine in India to below world-prices is that it may lead to export. This could be easily obviated by imposing a heavy export duty. It is unfortunate for India that of all the alkaloids of cinchona bark the merits of quinine alone should have been recognized by the medical profession, with the result that a monopoly has been created for the plantations and factories of Java. A reference to the history of the treatment of malaria in a recently published work by LIEUT-COL. R. KNOWLES and MR. SENIOR WHITE, shows that this routine use of quinine sulphate is more or less an accident and that "it is very far from certain that quinine is the best alkaloid of cinchona bark to use. Both quinidine and cinchonidine are more efficacious with regard to their anti-malarial power." The important investigation carried out by DR. FLETCHER in Kuala Lampur in the Malay States and the experience at the Calcutta School of Tropical Medicine show that alkaloids of cinchona bark other than quinine are quite effective in the treatment of malaria, if given in the usual doses in which quinine is given. The total alkaloids of the bark in the form of cinchona febrifuge have been used in the Carmichael Hospital for Tropical Diseases at the Out-patient Department of the School for many years with very satisfactory results.

It appears to us that the efficacy of the other alkaloids of quinine in the treatment of malaria has now been sufficiently recognized by the medical profession. Let quinine stand as the remedy for malaria for those who can afford to buy it, but let the total alkaloids of the bark, if not the bark itself, be made available to satisfy the requirements of the masses at a price which they can afford to pay.

Experience in India and specially in the Nilgiris has shown that Cinchona ledgeriana, from which most of the quinine supply of the world is obtained, is a relatively weak plant, shortlived, difficult to grow except under optimum conditions and apparently less vigorous as the quinine content of the bark increases. This tree yields quinine and very small quantities of other cinchona alkaloids. On the other hand, C. robusta which is a more or less fixed hybrid between C. succirubra and C. officinalis, grows luxuriantly within a wider range of elevation and temperature, is decidedly less subject to diseses, and yields quinine and other alkaloids in more or less equal proportions. Again, C. succirubra, the most easily grown tree of the lot, yields small quantities of quinine but a high percentage af cinchonidine and cinchonine and increases in size up to 40 years in South India. It is well known that the growing of cinchona in India by private agency has almost completely ceased due to the fact that C. ledgeriana the bark of which alone found a profitable market, is difficult to grow, and little or no price is paid for those cinchona species yielding barks containing cinchonidine and cinchonine as the main alkaloids.

If a definite authoritative pronouncement were made by the medical authorities calling attention to the value of the other alkaloids of the bark, and the free use of cinchonine and cinchonidine is advocated, the problem of making India self-supporting in the matter of treatment of malaria would be made quite easy to solve in the course of a few years. If this is not done and the demand for quinine only is maintained, the Cinchona Department will never be able to produce sufficient quantities of this alkaloid to cope with the requirements of the country to efficiently deal with malaria and what is more important the price of quinine will never be reduced to bring it within means of the masses.

Another advantage of this policy, if adopted, will be that the growing of cinchona by private agencies may be revived and this may even lead to the extraction of the total alkaloids by private manufacturers.

The Committee, therefore, desires to urge on the Government the necessity for examining the quinine policy in the light of the above remarks. The efficacy of the extended use of quinine in reducing the incidence of malaria and the mortality due to it has been demonstrated in Italy. As medical opinion is now becoming convinced that such alkaloids as cinchonine, cinchonidine and quinidine are just as effective in combating malaria as quinine, there is no reason why their use should not be extended.

The Committee considers (1) that the adulteration of quinine sold on the Indian market is widespread, (2) that the root cause of adulteration is the high price of quinine, and (3) that if the present policy of the Cinchona Department of growing only the species of cinchona which are most suitable for the production of quinine, in a limited area, is continued it will be difficult to bring the price of the alkaloid down to the point of being commensurate with the means of the masses.

The Committee feels that the problem of adulteration of quinine will not be satisfactorily solved unless action is taken on the following lines :

(1) The position with regard to the utility of the other alkaloids of cinchona bark, e.g., cinchonidine, cinchonine and quinine, in the prophylaxis and treatment of malaria should be clearly defined. Most of the recent work shows that they are just as effective as quinine ; but if this is not considered convincing, special research on this question should be immediately taken in hand and definite ruling obtained ;

(2) that, if this view proves correct, the

Cinchona Department should cultivate the species of cinchona best suited to the Indian climate, on a sufficiently large scale to make India self-supporting with regard to these alkaloids and at prices commensurate with the economic condition of the masses ; and,

(3) that with a view to extend the cultivation of cinchona in India experiments be carried out in the growing of different varieties on a small scale in various areas, close connection between the field and the laboratory being maintained.

Progress in Medicine

Synthetic Quinine Produced. It is announced by the Institute of Chemistry at Hamburg that DR. RABE and his assistants have succeeded in producing artificial hydroquinine and hydroquinidin.

Professor RABE has been working for years on the chemical structure of the quinine alkaloids, and has discovered a process for making synthetic quinine differing in no respect from the natural product.

The discovery will permit of the production of certain quinine alkaloids that do not occur in nature, and many additional valuable drugs to the pharmacopoeia.

Vitamin D. The Berliner Tageblatt publishes a report that Professor ADOLF WINDAUS, the head of the Chemical Institute at Gottingen, has succeeded after four years of work in producing Vitamin D in a pure crystallised state. Professor WINDAUS was awarded the Nobel Prize for Chemistry in 1928.

Isolation of the Male Hormone. An important achievement in organic chemistry is claimed by a Gottingen University chemist, HERR BUTENANDT, who states that he has successfully isolated the male hormone of which the chemical formula is $C_{16}\ H_{26}\ O_2$ (*Med. World, 11. 12. 31.*)

Medical News and Notes

[Items of news and notes of general interest to the profession for incorporation in this section from the members of the profession will be greatly appreciated—EDITOR]

Question of bigger Hospital for Delhi. It seems that the authorities of the Delhi Civil Hospital have at last been roused to activity and are making serious efforts to improve the accommodation of the Hospital. Our readers will remember that sometime back the D. G. I. recorded in the Visitors' Book of the hospital that "The buildings are grossly inadequate numerically. There is no city in India where Indian male patients are so inadequately provided in the matter of hospital buildings." Again, when Her Excellency LADY WILLINGDON visited the Civil Hospital on October 16, 1931 she admired the splended work that was being done under difficult circumstances "but was horrified to find that in Delhi, the capital of India, 309 patients were in (or rather outside) this hospital which was made to hold about 150". The hospital question has been more acute recently because the Government had to abandon the idea of building the proposed Irwin Hospital at present owing to an unfortunate dispute over the selected site caused by the discovery of the ruins of an old mosque within the area and hence claimed by the Mohomedans as a sanctuary.

An interesting debate on the whole question of hospital accommodation was raised in the Delhi Municipal Committee meeting recently particularly arising out of Her Excellency's remarks as recorded in the Visitors' Book.

One member suggested that a deputation should wait on His Excellency the Viceroy and request him to provide the necessary funds which had already been voted by the Legislative Assembly, but had not been made available for the present, on account of financial stringency and retrenchment.

He also suggested appointment of a sub-committee of Muslim members of the Committee with a view to reach a compromise with the Mussalmans in regard to a mosque which had been discovered during the course of levelling down the Irwin Hospital site.

Another member while welcoming the suggestion, did not feel that the Municipal Committee was competent to appoint a committee of its members to enter into negotiations. For the proposed Irwin hospital was not going to be a municipal hospital and hence it could not

be the function of the Committee to intervene in a dispute between the local Mussalmans and the Government. Besides, the site for the Irwin Hospital was within the jurisdiction of the New Delhi Municipality. The Irwin Hospital should not be, therefore, their immediate concern in the present state of financial stringency, but they should explore avenues of finding means to extend their existing hospital in Old Delhi.

He, however, felt that in case the Government could not give the whole grant of Rs. 6 lakhs the Municipality should ascertain as to how much money Government was prepared to set aside immediately for hospital work.

Finally, the Committee decided to place the entire case for a hospital before the local Government, with a request that it might be forwarded to the Government of India for favourable consideration.

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Retrenchment Committee's Recommendations. The following are the outstanding features of the final report of the Retrenchment Committee appointed by the Government of Bombay in March last. An interim report was submitted to Government in July.

1. The Public Health and Medical Departments should not be amalgamated but the post of one Assistant Director of Public Health should be abolished.

2. As a temporary measure every out-patient should pay a fee unless exempted by the medical officer. The fee should be very small, say one anna in Bombay and half an anna in the mofussil. It is also suggested that there should be three classes of in-patients all paying a small fee unless specially exempted, with a more costly ward for those who ask for it and are willing to pay. It should be stipulated that the space for the poor be not reduced.

3. The post of Lay Secretary at the J. J. Hospital should be retained for another five years, in view of the savings effected.

4. Incurable infirms, who require attendance but no medical treatment, should be kept in infirmaries leaving the beds so vacated for sick persons.

5. All bacteriological laboratories should be made self-supporting.

6. A large proportion of Indian nurses should be recruited in future.

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Mysore Hospitals. The Mysore Government has issued a notification directing that every person, with a monthly income exceeding Rs. 50 attending a hospital or dispensary for treatment in the cities of Bangalore and Mysore and in the Kolar Gold Fields as an out-patient will be charged at the rate of four annas and in the District Headquarters Hospitals at two annas for each attendance, such payment to include charges on account of advice (including a minor operation) and medicine for a day. Children under 12 years of age will, however, be charged at half the above rates.

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Honorary Medical Officers. The Madras Government have sanctioned of the scheme proposed by the Surgeon General to staff the Royapettah hospital in the city almost entirely by honorary medical officers as an experimental measure.

The honorary medical staff to be appointed will consist of an additional honorary physician, one honorary surgeon, one honorary assistant surgeon, one honorary lady assistant surgeon, one anaesthetist and one honorary sub-assistant surgeon.

These changes in the staff which are to be introduced gradually from this month, will mean the replacement of the paid staff of one additional civil assistant surgeon, three sub-assistant surgeons and one lady sub-assistant surgeon.

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Reduction in Hospital Beds. It is understood that owing to financial stringency the Managing Committee of the Barisal Hospital and Charitable Dispensary, (Bengal) have recently decided to reduce the number of beds for in-door patients in the Hospital from the present number of 50 to 25. The reduction, if given effect to, is calculated to cause great hardship to the poor sufferers of the district.

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Portrait of late Dr. H. M. Crake Unveiled by Mayor. DR. B. C. ROY, the Mayor of Calcutta unveiled on Saturday the 28th November, 1931 in the Council Chamber of the Calcutta Corporation, the portrait of the late DR. H. M. CRAKE who served the city of Calcutta for a number of years as the Health Officer.

The late DR. CRAKE had come out to India in 1899 as Plague Officer during the plague epidemic in the city. In 1913, he was appointed as the Health Officer, which post he held till 1926. He was largely responsible for the introduction of a new system in maternity cases in Calcutta.

The following inscription below the portrait speaks a lot of this able officer :

"He laboured to improve the health and conditions of life in this city with ability and success for a period of 27 years."

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Medical Licentiates' Conference. The 25th sitting or the Jubilee Session of the All-India Medical

Licentiates' Conference will be held at Darbhanga from 8th January, 1932 under the presidentship of Dewan Bahadur T. RANGACHARIAR, C.I.E., M. L. A. The Scientific Section which will hold its sitting on the 4th January, 1932 will be presided over by COL. L. COOK, C. I. E. M. B., B. S., F. R. C. S., I. M. S., Inspector-General, Civil Hospitals, Bihar and Orissa.

A Scientific Exhibition in this connection has also been arranged. This Exhibition is expected to be presided over by Hon'ble SIR GANESH DUTT SINGH, Minister-in-Charge, Portfolio of Medicine B. and O. Proposal has been made to organise a child welfare exhibition also including maternity and baby show.

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Doctor's Sense of Responsibility. It is reported that Professor HENRY SHIAKY while operating on a man in his clinic at Milan was seized with sudden illness.

His assistant offered to complete the operation, but PROF. SHIAKY insisted on seeing it through, and he actually went on until with a cry, he fell in the assistant's arms.

Doctors and nurses came to his help and he appeared to rally so much so that he insisted on returning to the operating table but his strength gave way and again he collapsed, exclaiming : "Take care of the patient."

Two minutes later he died from cerebral haemorrhage.

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Dr. Aschoff Receives Microscope. It is the custom of the famous firm of E. LEITZ of Germany to present every fifty thousandth microscope to a prominent scientist or institute. The fifty thousandth one was given to the German Tuberculosis Sanatorium in Davos, Switzerland ; one hundred thousandth to DR. ROBERT KOCH in Berlin ; one hundred and fifty thousandth to DR. PAUL EHRLICH in Frankfort ; two hundred thousandth to MARTIN HEIDENHEIM in Tubingen ; two hundred and fifty thousandth to Institute for Tropical Hygiene in Hamburg. The three hundred thousandth microscope has been only recently presented to Geheimrat Professor DR. KARL LUDWING ASCHOFF of Freiburg in Breisgau, Germany.

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Should a doctor kiss. An aggrieved husband has put, according to "The Daily Herald", before the Modena Tribunal in Rome the question : Should a doctor kiss ? SIGNOR MONTANARI accused a Dr. BIZZIOCCHI of demending a kiss from SIGNORA MONTANARI, whom he was treating. After a long deliberation the Court acquitted the doctor, deciding that to ask for a kiss is not an offence punishable by law. The husband was sentenced to 30 day's imprisonment for thrashing the doctor.

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Blade in Man's Brain. Surgeons in Chicago have decided not to interfere with a two-and-a-half inch blade which a man aged 59 has been carrying in his brain for 30 years as the operation is considered very risky.

It was explained to the surgeons that the man was involved in a tavern brawl in 1901, but did not realise until recently that the knife blade had broken off in his skull. The man suffered no particular pain but has been subject to lapses of unconsciousness. (Med. World. 25-12-31).

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Table Calendars. We are glad to inform our numerous readers that Messrs Anglo-French Drug Co. (Estn) Ltd., Yusuf Building, Church gate Street, Bombay, have expressed their desire to forward a calendar for 1932 to any reader of this Journal who may be interested.

Annual Reports

The Ross Institute and Hospital for Tropical Diseases.

The Ross Institute in its Annual Report and Accounts for 1930 issued on May 6, 31 gives a statement of the progress of work being done in the different departments.

Investigations on natural and acquired immunity and researches on the blood in cancer with reference to diagnosis, prevention and treatment on the medical side and aspects of the problem which were already reported previously have been continued. The department of Tropical Medicine and Dermatology headed by SIR ALDO CASTELLANI shows a good deal of advance. The Director has completed the investigations of two new fungi. He continues his investigation on fungi and fungal diseases and lesser known forms of chronic colitis and his researches on a number of "Minor diseases and little known ailments."

A note of the activities of the Malaria Department has been given. This includes expedition to India 1928-29, Central Africa 1929, Africa 1930, Northern Rhodesian Government, Union of South Africa, East Africa 1931. It is gratifying that in most cases reports were or would be

published and practical schemes for control suggested or followed. In Appendix I, p 40 a note is given on the "Cost of Malaria" and SIR MALCOLM WASTSON explains the Malaria Policy of the Institute in Appendix II, page 41.

The Committe decided to hold courses each lasting a week for laymen at the Ross Institute in order to facilitate malaria control as with increased knowledge there would be better co-operation between the scientific adviser and the planter.

The Executive Committee have in view the importance of propaganda in the extention of anti-malaria work. Facilities to follow researches in the various departments were given to a number of doctors.

The authorities are trying to raise the efficacy of paris green to a higher standard and improve the results of oiling by employing suitable oils and sprayers.

The attached hospital showed an increase in the number of patients over that of last year. The cases treated were of as great a diversity as the countries which they represented.

The finances suffered owing to the prevailing depression and the total collections showed a decrease of £1500.

Quinine Production in Bengal 1930-31.

The following are some of the important features of the Bengal Governments resolution published in the Calcutta Gazette of the 17th December, 1931, on the report of DR. C. C. CALDER (Superintendent of the Government Cinchona Plantations) on the work of the last official year.

1. The world price of quinine has been maintained since 1926-27 in spite of general depression, and there is no prospect of any reduction although the price of many other chemical products has declined.

2. The total consumption of quinine in India is also keeping remarkably steady at about 211,000 lbs, per annum but in the opinion of the Superintendent this is not due to the steadiness of the price.

3. The area under cinchona cultivation in Bengal at the end of the year was 2,657·91 acres. Extensions comprising 120·2 acres were carried out during the year in both the plantations, Mungpoo and Munsong.

4. Altogether 43,021 lbs. of quinine sulphate were manufactured during the year at a cost of Rs. 2·721 per lb. Of this 5,959 lbs. belonged to the Government of India. The total quantity of cinchona febrifuge manufactured during the year was 20,219 lbs. of which 3,266 lbs. represent the share of the Government of India. The expenditure incurred on the febrifuge was Rs. 1·820 per lb. Besides, 609 lbs of other quinine salts were manufactured.

5. The total expenditure of the department during the year including pensionary charges was Rs. 4,08,433. The total receipts exclusive of Rs. 4,923 from land rent, grazing fees, etc., paid into treasury not to the credit of the Cinchona Department, and Rs. 22,158 being the payment on account of the extraction work done for the Government of India, but inclusive of Rs. 1,872 received direct from miscellaneous products, etc., were Rs. 6,27,228. Of this amount a sum of Rs. 31,515 is deducted for credit to the Jails Department for distribution of the cinchona products, leaving a balance of Rs. 5,95,713 for entry in the profit and loss valuation account.

6. The expenditure was lower by Rs. 7,663 and the receipts were higher by Rs. 7,848 than in the preceding year. Outstandings at the end of the year amounted to Rs. 29,250 consisting of Rs. 7,092 due on account of sales, Rs. 16,214 for extraction of 5,959 lbs of quinine sulphate and Rs, 5,944 for extraction of 3,266 lbs of cinchona febrifuge on behalf of the Government of India. The profit balance on the year's working amounted to Rs. 2,82,667 a result that may be considered satisfactory as trade depression with diminished purchasing power was evident during the year.

7. There has been a rather considerable increase in the Bengal stock. The quantity of quinine sulphate powder, which forms the bulk of the stock increased from 52,905 lbs. to 73,523 lbs. If quinine were offered in the open market at price below the world price, it is probable (says the resolution) that most of the benefit would go to dealers instead of to consumers, and further there would be export which would deplete the stock without any advantage to the population for whom it has been produced.

Working of the Hospital and Dispenseries in C. P.

The I. G. of Civil Hospitals, C. P. in his note on the annual statement of the hospitals and dispensaries in the Central Provinces and Berar for the year 1930, states :

There were 337 hospitals and dispensaries at the close of the year 1929. Nine dispensaries were opened and six closed during the year.

The number of in-door and out-door patients treated was 2,745,590. The increase is noted in all districts except Balghat, Damoh and Betul.

Anti-rabic treatment is being carried out as usual in the provinces. There are five centres, the centre in Berar being at Akola and no less than 1,077 patients were treated at these five centres.

The treatment of leprosy is being carried out at all main hospitals.

Health propaganda work is carried out as usual by delivering lectures on health subjects with the aid of charts and pamphlets by all Assis-

tant Medical Officers in charge of outlying dispensaries in their own dispensary towns on bazar days and in schools.

There are independent medical practitioners holding honorary appointments at the Mayo Hospital, Nagpur, Victoria Hospital, Jabbalpur, Irwin Hospital, Amraoti and Main Hospitals, Akola and Buldana.

It is to be regretted that owing to financial difficulties many schemes could not be provided for during the year under review. For instance, the establishment of a large number of cheap plan dispensaries has been postponed owing to the inability of the Government to pay its share of contribution towards the scheme owing to financial stringency, although the local bodies were prepared to pay their share of the contribution and the required subscriptions were collected locally.

The scheme for subsidising qualified private practitioners to settle in villages was continued during the year and seven such practitioners were subsidised and dispensaries started. This scheme has been working for the last two years, but reports on the working of some of them are very disappointing.

Most unfortunately no grant-in-aid for the free treatment of pauper lepers could be given during the year as the provision of Rs. 1,000 for the purpose had to be surrendered.

The new scheme for carrying on the work of health propaganda with the aid of charts in villages within a radius of ten miles in selected areas could not be given effect to for want of the necessary provision in the budget.

Red Cross in C. P.

The Indian Red Cross Society, Central Provinces and Berar Branch, of which His Excellency SIR MONTAGU BUTLER is President, has issued its annual report for the year 1930. It states:

SIR ARTHUR NELSON continued to be the Vice-President of the Branch and the Chairman of the Managing Body throughout the year.

The branch was unable to add more activities to its programme and had to confine itself to health propaganda, child welfare, medical relief and initial work for establishing "Junior Red Cross" in the province.

Subscriptions (Rs. 1, 834-8-0) were a little over half of what was collected during the previous year. Yeotmal made a good beginning and collected Rs. 1,119-0-0. No other district sub-committee has been able to collect an amount worth mention. They ascribe their inability to the general depression and to the political movement.

Owing to unprecedented financial stringency Government had to cut down its grant for welfare work and Rs. 10,000 had to be refunded. It has also reduced its grant for 1931 by Rs. 20,000.

Child Welfare is the chief activity of the Branch and serves as effective propaganda for the Red Cross Society. The Welfare Committee lays great stress on the instruction of the indigenous *dai*. The Yeotmal Sub-Committee induced the municipality to issue licences to practise to such *dais* only as have passed examinations. But they have not yet been able to penalize such as practise without a licence.

Assistance to military hospitals by supplying comforts for patients amounted to Rs. 1,831-1-0 against a budget provision of Rs. 5,900. The changes in policy as to the nature and extent of comforts to be supplied seemed mainly to be responsible for the hospitals not making full use of the amounts, allotted to them.

The civil hospitals in the province used up nearly the whole of the allotment (Rs. 4,000) and could have used more to the benefit and appreciation of patients. Part of the grant (Rs. 1,000) was spent by the Inspector-General of Civil Hospitals, C. P., on supplying appliances of first aid to 17 roadside dispensaries termed Motor Red Cross Aid Posts to provide for motor car accidents. For want of funds the question of providing a motor ambulance had to wait.

Red Cross Society, Bombay.

The following are some of the activities of the Indian Red Cross Society, Bombay, during the last year.

1. The formation of the new Anti-Tuberculosis Sub-Committee with MR. H. K. KIRPALANI, the Municipal Commissioner as Chairman and DR. J. S. NERUKAR, the Health Officer as Honorary Secretary. The funds for this work were supplied from the money collected in India for the King George Thanksgiving Fund.

2. A life-guard in uniform is on duty at Juhu and 16 cabins are being built above high water line each to contain life-jackets, life-lines and life-buoys.

3. Three new travelling dispensaries are being formed in the districts and a new branch was opened at West Khandesh.

4. The American Women's Club donated Rs. 100 and Messrs. Mackinnon Mackenzie and Company have sent Rs. 50 each month. A gift of playing cards was received from Messrs. Spicer and Company. A grant of Rs. 100 was donated to St. Joseph's Nursing Home.

5. The sum of Rs. 1,963-12-9 has been spent in comforts for the civil hospitals and Rs. 765-7-10 for the military hospitals besides Rs. 276-7 from the "Extra Comfort Fund" in special requests for

other institutions not on the regular list for hospital comforts. Through MRS. KARAKA, gifts of Khadi were received as also a cheque to be used for the inmates of the Ackworth Leper Asylum, Matunga.

The Lady Minto's Indian Nursing Association.

The following are some of the important features of the annual report of the above association for the year ending 1930.

The average number of nursing sisters employed in the private nursing staff was 64. They nursed 713 cases, were employed for 13,875 days and earned in fees Rs. 1,34,663-14. These figures include the working days of some of the staff of the Railway Hospital, Ajmer, which is worked from the Rajputana Nursing Centre. The nursing sisters received Rs, 1,15,675-5-0 in salaries alone (not including Provident Fund, passages, etc.)

The report remarks that there was a distinct fall in the work of nurses generally during the year under review and this Association along with other organisations felt the pinch of it. The reason given for this are that there was less sickness, that more people were going home on leave instead of going to the hills, and owing to various reasons fewer people were coming out to India.

Some of the Committees of the Local Branches have been finding it difficult to collect sufficient funds to keep their branches solvent and have applied to the Central Committee for permission to retain a proportion of the fees earned from non-subscribers' cases. It has been the policy of the Central Committee to assist the Branches during temporary crises, but it is necessary to issue a word of warning. The Central Committee has to provide for the Nurse salaries, passages, out of the Central Funds and it cannot go on indefinitely assisting the support of the Branch Centres.

From financial statements it appears that the investments have depreciated again this year by Rs 9,875 owing to the depression in the market. In the statement of financial expenditure it will be seen that the cost of passages is Rs. 34,284-10-3 as compared with Rs. 46993-11 in the previous year. The plan of earmarking part of the fees for passages is working well as Rs. 9,780-8 was received during the year.

Radium Institute, Patna.

During the year 1930, 546 cases were attended to against 437 of the last year. This total does not include either the cases left under treatment at the close of the previous year, or those old patients who returned during 1930 for further treatment, which latter numbered 120.

The fees received during the year from patients who returned during the year, for radium treatment amounted to Rs. 11,450 against Rs. 7,125 of last year. The income from house rent amounted to Rs. 4864 against Rs. 3162-8 of the last year.

To remove the great difficulty often experienced in the treatment of strictly purdah women who refuse to be attended to by a male doctor it is gratifying to note that a qualified lady is under training. A resident Home Physician has also been detached for duty at the Institute since April.

From the way in which the number of patients are increasing it is felt that the quantity of radium available at the Institute is not sufficient and the report points out the urgent necessity of augmenting their radium resources in the immediate future.

The Institute is at present situated in a portion of the building for the hospital for women of the Medical College Hospital where only a limited number of beds is reserved for the accommodation of patients.

It is understood that plans and estimates have been prepared and site selected for a separate building for the Institute. Sufficient accommodation has been provided for a suitable number of patients with proper arrangement for their comfort and convenience. It is worthy of note that the MAHARAJA KUMAR BISHAWSWAR SINGH of Darbhanga has made a substantial donation to enable the building scheme to materialize in near future.

Miraj Hospital.

The annual report of the Presbyterian Mission Hospital, Medical School, Leper Asylum and Wanless Tuberculosis Sanatorium at Miraj for 1930, records as in previous years the good and fruitful work done by the authorities in affording prompt medical aid to the needy and relieving distress. One of the outstanding events of the year was the announcement made on July 1, 1930, that 100 milligrams of radium at a cost of 7,450 dollars was assured to the hospital. The use of radium in the treatment of cancer had been attended with beneficial results.

The abstract of annual accounts showed that the total expenditure amounted to Rs. 1,35,906-3-0 and the income to Rs. 143,808-7-7, leaving a balance of Rs. 7,902-4-7, which was transferred to the building account. The total donations to the hospital amounted to Rs. 9,203-4-6. The total number of patients treated at the hospitals and dispensary during the year was 25,309, while the number of operations performed was 3,299.

A large quantity of linen was sent to the hospital from the United States, the total value of the supplies being about Rs. 9,000.

St. George's Hospital Nursing Association, Bombay.

The report of the committee of the Association for the year ending March 31, 1931, shows that during the period the average working strength was 62 nurses as against 64 in the previous year. During the year 35 probationers were enrolled, of whom 19 were retained in the services of the Association.

The Association's financial year ending March 31, 1931, closed with a surplus of Rs. 5,097. This result is mainly due to the net profit of Rs. 9,459 derived from private nursing fees after allowing for a rebate of Rs. 7,303 to subscribers, and to the very welcome donation of Rs. 4,650 from the Bombay Devonian Association, representing 75 per cent. of the proceeds of the Charity Ball and Cabaret organised by them last year.

Under the head of Private Nursing Fees, the falling off in receipts amounting to Rs. 1,007 was counterbalanced by a saving of Rs. 2,739 in expenditure. Subscriptions and donations aggregated Rs. 48,859 approximately the same as the previous year's figure. Collections from firms and individual subscribers totalled Rs. 31,966.

The committee are feeling the pinch of the prolonged world depression as a result of which the receipts from Private Nursing Fees have fallen down considerably. The number of private nurses has been reduced by two and further reductions will have to be made if the falling off continues. The question of maintenance has become more difficult with the unavoidable withdrawal of the annual grant of Rs. 15,000 which was being received from the W. I. T. C.

Hospitals in Mysore.

Following are some details of the of the working of the hospitals and dispensaries in Mysore State for the year 1930 :

There were 262 institutions at the beginning of the year, with 10 new institutions opened during the year. The total number of patients treated rose from 30,069 in the previous year to 33,807 in the year under report, while the percentage of deaths among them slightly fell from 5·72. The largest number of in-patients were treated for diseases of digestive and generative systems and malaria, and the largest number of deaths among in-patients was from pneumonia. The largest number of out-patients treated was for malaria, *viz.* 5, 26,884.

The total expenditure of the department was Rs. 14,23,692 showing an increase of Rs. 86,265 over that of the previous year. Of this expenditure, a sum of Rs. 2,58,021 was contributed by District Boards.

A noticeable feature in the provision of medical aid in rural areas was the scheme recently sanctioned of establishing dispensaries on a reduced scale of expenditure entirely borne by the District Boards, a part of the initial cost being also contributed by the village panchayats benefitted by these institutions.

Another important measure sanctioned during the year was one relating to the opening of birth control clinics in Mysore and Bangalore. The lady medical officers of the premier hospitals in Bangalore and Mysore have been asked to give necessary help to women seeking bonafide advice and also instruct them in the technique. Arrangements have also been made to supply to such women contraceptive appliances at cost price.

With a view to render medical aid to the women in the interior villages, arrangements have been made by the department to make the advice of lady medical officers at District Head-quarters, available to them in emergencies as part of their regular duties.

Mysore Health Department.

Some of the activities of the Mysore Heath Department as detailed in the Administration Report of the department for the year 1930, which has been recently released for publication are enumerated below :

Experiments were made in Bangalore City with a view to see if the larvicidal fish "Gamboosia" could be sussessfully used for the eradication of anopheline larvae breeding in wells. As a result of this experiment it is reported that the fish compare favourably with the paris green in the control of the larvae in wells.

A malaria survey of Mysore City was also undertaken during the year and a scheme for starting malaria control work was prepared and forwarded to the Municipal Council. A rapid survey of the estates belonging to Tea Estates (India) Ltd., in the Malnad parts of the Kadur District was undertaken by the Department with a view to suggest practical measures for controlling malaria in the labour force.

The income and expenditure of the Vaccine Institute were Rs. 25,173-14-2 and Rs. 19,267-14-0 respectively showing an excess of receipts by Rs. 5,906-0-2. The amount outstanding against the local bodies at the close of the year was Rs. 29,786-1-8 of which a sum of Rs. 21,289-5-4 related to the previous years.

The work of the Bureau of Sanitary Engineering was carried on in 3 sections *viz.*, water supply, sewage and drainage and miscellaneous. In the water supply section, 8 new water supply

projects were designed, two projects for the extension of the existing water supplies were prepared and 32 water supply installations were investigated. In regard to town extensions the Bureau has completed 8 lay out plans. Experiments were also conducted in the design of cheap flushing latrines, small septic tanks and bore-hole latrines and composts. In addition to the above the Rockefeller Foundation Sanitary Engineer inspected the sanitation drainage and other improvements in 13 municipal towns.

Appointment of Professor of Pathology at the Grant Medical College, Bombay

The following resolutions were passed by the Managing Committee of the Bombay Medical Union at its meeting held on 16th November, 1931, regarding an advertisement in the issue of the Times of India dated 26th October, 1931 inviting applications for the post of the Professor of Pathology at the Grant Medical College :

1. The Managing Committee of the Bombay Medical Union strongly disapproves of the terms and conditions advertised, inviting applications for the post of a Professor of Pathology at the Grant Medical College.

2. The Committee is of opinion that the Professorship in Pathology should be a full time post as in Anatomy and Physiology.

3. The incumbent should be debarred from consulting as well as any other practice.

4. The Committee here begs to point out that in contributing jointly Rs. 5 lacs for the Pathology Institute, SIR DORAB TATA and Government had the idea of research uppermost in their mind. This will never be fulfilled if the incumbent is given a meagre salary and permitted private practice as a compensation.

5. The Committee is further of opinion from past experience that allowing private practice to such appointments has always interfered with the legitimate progress in research in the subject and has proved detrimental to the interests of the students and of the medical profession.

6. The Committee therefore urges upon the Surgeon-General to reconsider the question and offer an adequate salary ranging from Rs. 750 to Rs. 1500, according to the merits, qualifications, and experience of the incumbent in the subject. It further urges the selection of the best man only without any other consideration.

7. The Managing Committee of the Bombay Medical Union considers it derogatory for any self-respecting man of merit to apply for the post of Professor of Pathology at the Grant Medical College, as advertised in the Times of India dated the 26th October, 1931, in view of the terms and conditions offered therein.

8. The Managing Committee of the Bombay Medical Union further resolves that copies of the above resolutions be sent to the Surgeon-General, the Minister of Education, the Secretary to Government, the Secretary to SIR DORAB TATA, the Superintendent Haffkine Institute, the Medical Associations in India, and the Medical Colleges in India, and the Press.

Obituary

Col. W. M. Houston.

Death occurred on October 30, of COLONEL WILLIAM MITCHEL HOUSTON, I. M. S., at the age of 56. He was for many years Health Officer for the Port of Bombay where he had many friends and was a popular and respected official.

COLONEL HOUSTON entered the Indian Medical Service and came to India in 1900 and after serving for sometime on the military side was transferred to the civil side as Personal Assistant to the Surgeon General of Bombay.

At the outbreak of the Great War he again reverted to the military side and worked there till 1917 when he was appointed on reversion to the Civil Department as Health Officer of the Port of Bombay. This post he held until 1929 when he became Inspector-General of Civil Hospitals in Bihar and Orissa.

In December 1930, COLONEL HOUSTON was compelled through ill-health to relinquish his office and go home and his health was never afterwards satisfactory. He had a severe heart attack on October 21, while playing golf and from that he never rallied.

Book Reviews

Prevention of Diseases peculiar to Civilisation. *By Sir Arbuthnot Lane, Bart. Crown 8vo, xiv+99 pages, published by Faber & Faber, London, cheap edition, 1931 ; Price 2s.*

SIR ARBUTHNOT LANE is a forcible w[illegible]e and his teachings are based on experience, careful observation and commonsense. As president of the New Health Society he is doing a great public service by disseminating knowledge pertaining to health and prevention of disease to the general public.

It is being realised that our so-called modern civilisation is responsible for many of the ills to which human beings are unconsciously becoming a prey. Thus it has been found that chronic constipation with its attendant auto-intoxication and cancer are diseases not found in countries where the inhabitants have not adopted the habits and customs of modern world. SIR ARBUTHNOT has forcibly brought home this unpleasant truth and one reading his book will not fail to realise how human machine undergoes anatomical, physiological and pathological changes with the altered circumstances of life. Whether the so-called civilisation which we are passing through is a social evil is a question which perhaps some may not agree. But the fact remains that man may be free from many troubles regarding health and longevity by adopting a more natural mode of life instead of being a slave to fashion of modern times.

To the people of India SIR ARBUTHNOT'S teaching is of great value as it reminds them the habits and customs of their remote ancestors who regarded fresh air and sun light *i.e.* open [illegible]fe, diet of fresh foods—milk, fruits, vege-[illegible]—as obligatory to good health and long life. With the grafting of western civilization these ideals are unfortunately fast disappearing.

It is, therefore, a pleasure to read this really interesting book, and since it is written for the general public its language is clear. The book should be read by every one interested in the health and welfare of the people.

The price is exceptionally cheap and the book should be in the hands of every educated man and woman. *B. N. G.*

The Proposed All-India Medical Council and all about it.—*Published under the authority of the All-India Medical Licentiates' Association.*

We have received a copy of this pamphlet the subject matter of which mainly revolves round the proposed All-India Medical Council Bill and the contemplated exclusion of licentiates from its purview.

We dealt with the subject in detail in a previous issue and refrain from dissussing the matter further in this column. *—Ed., J.I.M.A.*

Drugs and Chemicals

Messrs Raptakos Brett & Co., Ltd. have brought to our notice that some of their competitors are making false allegations against their product "Calcinol" with regard to its French origin. That the composition is not in accordance with the formula given on each phial is another serious charge brought against the manufacturers.

The company has taken up the challenge and is ready to prove the genuineness of the product.

Messrs. Denver Chemical Mfg. Co. of New York claim that the application of Antiphlogistine dressing which contain a high percentage of glycerine and other synergistic ingredients, exerting penetrating, absorptive and antipruritic actions is effective in allaying the irritation, itching and associated discomfort of tinea interdigitalis which is caused by a fungus tricophyton interdigitalis and popularly known as ringworm, dhobie itch, athletes' foot etc.

Antiphlogistine is the work of years of specialization and should prove a most valuable agent in combating the condition especially when it is compounded according to a definite formula familiar to the medical profession.

Proposed Indian Medical Council Bill

Since the publication of the summary of opinions on the proposed Indian Medical Council Bill in the last issue of this Journal (pp. 127-134) we have received the following additional views on the subject.—Ed., J. I. M. A.

TANUKU MEDICAL ASSOCIATION.

Preamble : For the proper interpretation and understanding of this Act, its objects should be clearly defined and must be embodied in the body of this bill.

The Association is of opinion that privileges and amenities that may be enjoyed by registered medical practitioners in preference to others must also be mentioned directly in the bill.

Section 3. Proposes modification of the section as under :

(*a*) An elected president from among the members by themselves.

(*b*) A combined representative for the Local Government and the corresponding Provincial Medical Council (wherever one exists) for each Governor's Province. These need necessarily be medical men only.

(*c*) A combined representative from each Governor's province elected by the Senates of the Universities of the Province and by the individual members of the Licentiates' Medical Examination Boards. Each representative must possess a teaching experience of at least 5 years and must be a member of any of the above named bodies.

(*d*) A representative from each Governor's province to represent all the independent medical practitioners in that province by direct election the only restriction for that representative being that he must be registered either on the Provincial or on the All India Medical Register.

(*e*) Three representatives to be nominated by the Governor-General-in-Council to represent special interests.

(*f*) In the case of non-Governor's Provinces they should be annexed to the adjoining Governor's Province and this combined Province for the purposes of this election must be treated as a single unit.

BAREILLY MEDICAL ASSOCIATION.

Section 3. (d) One representative to be elected by Indian Medical Licentiates on the Provincial Register of each Provincial Medical Council ; one graduate from each Provincial Register of each Provincial Medical Council.

MEDICAL PROFESSION OF BOMBAY AT A MEETING HELD ON 27-11-31.

Section 5 (3). Should be expunged from the bill and the medical profession should be left unfettered to select its own representatives.

TANUKU MEDICAL ASSOCIATION.

Section 7. The term of office of members including the President should not be more than 3 years.

Section 18. The degrees of Andhra, Patna and Rangoon University and the L.M.S., and the M.S. degrees af Madras University and L.T.M., D.T.M. and D.P.H. of Bengal and those of the Indian States (whichever may choose to join) should be immediately included in Schedule I

Provisions must be made in the bill to include medical licentiates on the All India Medical Register and also on the Council through their representatives.

BAREILLY MEDICAL ASSOCIATION.

Section 18. Indian Medical Licentiates who are duly qualified practitioners under Act VII of 1916 should be included in the purview of the bill.

TANUKU MEDICAL ASSOCIATION.

Section 19. (1) Together with Schedule II should be excluded from the bill for the present as the inclusion of these is quite contrary to the spirit of reciprocity contained in Sub-Section (2) ; and only they should be added in conformity with provisions of Sub-Section (2) of Sec. 19 and only after a guarantee from those respective bodies that the holders of Indian medical qualifications will have same rights and privileges as those of their own and that these qualifications will be registerable and registered in their respective countries. (3) Delete

MEDICAL PROFESSION OF BOMBAY AT A MEETING HELD ON 27-11-31.

Section 19 (1). Should be expunged from the bill or modified as under : "The medical qualifications granted by medical institutions outside British India, which are included in the Second Schedule, shall be recognised medical qualifications for persons enrolled or entitled to be enrolled on the Provincial Medical Registers upto the enactment of this Act."

Association Notes

Bengal Branch.

COMMITTEE MEETING

A special meeting of the Executive Committee of the Bengal Branch of the Indian Medical Association was held on 3rd November, 1931, at 7-30 p.m. in the Association Hall.

Members Present :

1. Dr. Sundari Mohan Das, 2. Dr. J. N. Basu, 3. Dr. B. K. Ray, 4. Dr. K. C. Chakraborty, 5. Dr. Rajat Chandra Sen, 6. Dr. A. N. Ghosh, 7. Dr. Basanta Kumar Ghose, 8. Dr. A. C. Ukil, 9. Dr. K. K. Sen Gupta, 10. Dr. K. B. Mukherjee, 11. Dr. K. S. Ray, 12. Dr. S. K. Sen, 13. Dr. A. K. Chakraborty.

The following gentlemen attended the meeting by special invitation to discuss a particular item in the agenda :

1. Rai Dr. Harinath Ghose Bahadur, 2. Dr. J. N. Maitra, 3. Dr. S. K. Basu, 4. Dr. Amulyadhan Mukherji, 5. Dr. J. C. Chatterjee, 6. Dr. B. K. Rudra.

DR. SUNDARIMOHAN DAS was voted to the chair.

1. Read letters No. S. 5116 dated 8th October, 1931 and No. 5116B dated the 2nd November, 1931 from the Secretary, Calcutta Corporation to the Secretary, Bengal Branch of the Indian Medical Association to elect a representative to the Advisory Committee for Mosquito Control Scheme :

Resolved that Rai DR. HARINATH GHOSE BAHADUR, M. D. be elected representative of the Bengal Branch of the Indian Medical Association for the year 1931-32.

2. Read a letter No. 3100 from Assistant Secretary to the Government of Bengal, Local Self-Government, Department Medical, enclosing a letter No. 879-H dated 19th May 1931 (Simla) to the Secretary, Bengal Branch of the Indian Medical Association regarding the proposed amendment of the Indian Medical Degrees Act (VII of 1916) :

Resolved that the Association is in general agreement with the principle underlying the amendment proposed.

3. Read the bill to establish a Medical Council in India and to provide for the maintenance of a British Medical Register :

(i) Resolved that the time given by the Government for submission of opinion is very short in view of the fact that the bill is of great importance and will affect vitally the interests of the medical profession all over India.

Resolved further, that the time chosen by the Government to introduce the bill was most inopportune because most of the important members of the legislatures are out of India engaged in the deliberations of the Round Table Conference ; that it is felt that it would be wiser to defer the introduction of the bill till the deliberations of the Round Table Conference are over and the relationship of the provinces with the central authority is properly adjusted ; that it would be most unwise to institute the Indian Medical Council involving a large expenditure in its maintenance in the present financial distress through which the country is passing.

[With regard to certain sections of the proposed bill the Committee recommended certain changes (if the bill is at all introduced) which have already been incorporated in an article published in the November 1931 issue of this Journal under the caption "The proposed Indian Medical Council Bill."]

(ii) Resolved that the Secretary be authorised to intimate the suggestions to the Central Council of the Indian Medical Association.

CLINICAL MEETING.

DR. SUBODH MITRA M. B. (Cal), M. D. (Berlin), F. R. C. S. (Edin) delivered a lecture on "Gynaecological Clinics in Europe" on the 7th December in the Association premises. The lecture was highly interesting in as much as a comparative and comprehensive description of the working of some of the famous hospitals in London, Paris, Switzerland, Vienna, Berlin etc., was dwelt on at some length. The lecture was based on a study of these clinics during his tours and was, therefore, very impressive.

DR. AMIYA MADHAB MULLICK presided and DRS. J. C. CHATTERJEE, B. SAHA and others took part in the short discussion that followed the lecture.

Medical Associations, Societies, etc.

Medical Societies, Associations, Unions etc. are invited to make use of this Section of the Journal. —EDITOR.

Sind Medical Union.

The Sind Medical Union records with profound regret the untimely death of DR. REWACHAND GOPALDAS, L.M. & S., an ex-president of the Union on 8th November, 1931. In DR. REWACHAND the Union has lost one of the most enthusiastic members. His services to the Union were many and were always actuated by a keen sense of duty to the best interests of the Union and the profession. During his membership of sixteen years, he was Secretary for years, Vice President for one year, President for three years and a member of the Managing Committee for three years. Only lately he accepted the new post of Honorary Treasurership inspite of his failing health. He was the representative selected to give oral evidence before the Lee Commission in 1923 which he did in a spirit all his own. He was also the equally able representative to the Hospital Fee Rules Committee of the Government of Bombay in 1925. The Union is proud of his services. His open frank and fearless temperament was a great solace to some and example to many.

May his good soul have his share of eternal peace and bliss !

The Union offers its heart-felt condolences to his daughters and other members of his family in their irreparable loss and bereavement and may they have the fortitude to stand it !

Madras Licentiates' Association.

The annual meeting of the above branch was held on Thursday the 10th December. DR. U. RAMA RAO presided.

The Provincial Secretary read his annual report on the working of the Association and its branches, after which the election of the office-bearers and members of the Managing Committee was gone through.

It was resolved to request the President and in case of his inability DR. A. VISWANATHAN to represent the Madras Branch in the fourth annual conference of the licentiates.

The following resolutions were unanimously adopted :

(1) The Madras Branch recommends strongly to the Surgeon-General with the Government of Madras and requests him to reserve 50 per cent of the appointments of clinical assistants in the teaching institutions to the licentiates and the period of such appointments be between two and four years (2) It is the opinion of the Madras Branch that no licentiate should accept the honorary appointment now advertised by the Government for the Royapettah Hospital with the designation—Honoray Sub-Assistant Surgeon unless it is so altered to indicate the nature of the work for which he is appointed and (3) that a deputation consisting of DRS. V. RAMA KAMATH V. A. MUTHIAH THEVAR and T. V. TANGANATHA RAO do wait on the Surgeon-General to report and explain the grievances of the licentiates with regard to the honorary system and to place before him the above resolution of the branch

Bombay Medical Council.

A meeting of the Bombay Medical Council was held at the Secretariat on 28th September last when the following business amongst others was transacted.

DR. KAIKU SORABJI GHASVALA, L. M. & S., a local medical practitioner, and DR. SHRIPAD NARHAR KULKARNI, M.B., B.S., a medical practitioner of Hubli were found guilty of infamous conduct in a professional respect and the Council directed the Registrar to remove their names from the Bombay Medical Register.

The charges against the former were that "Contrary to Rule 20 of the Code of Medical Ethics he styled his private dispensary after his own name" and that "Contrary to Rule 22 of the same Code upon the notice or signboard exhibited outside the building in which he carried on his practice, he mentioned certain positions stated to have been held by him on the staff of the Sir C. J. Hospital and at the Grant Medical College."

Although a notice was served on him DR. GHASVALA was not present at the meeting nor was he represented by a lawyer.

The charge against DR. KULKARNI was that being a registered practitioner he did, on or about March 12, 1930, without having previously had Rachangauda Rudragauda under his treatment or observation, give him a certificate to the effect that he was under his treatment from March 11, 1930, for acute dysentery and had advised him to take complete rest for a fortnight. The certificate was false to his knowledge, and he gave such a certificate for the purpose of making it possible for Rachangauda to obtain an adjournment of a criminal case in which he was accused.

The name of DR. BALOOBHAI H. BHATT, M.B., B S., whose conviction on a charge of assaulting a woman with intent to outrage her modesty was confirmed at the High Court recently, was also ordered to be struck off the Register.

Some of the members thought that the Doctor had been sufficiently punished and that his name

should not be struck off the Register. The resolution, however, was carried by a majority of one vote, six voting for and five against the resolution.

Jubbulpore Medical Association.

The following resolutions were passed by the Jubbulpore Medical Association at a meeting held on October 30 :

1. The Medical Association of Jubbulpore notes with regret that due to the indifference of the Inspector-General of Civil Hospitals, Central Provinces, the appointment of a Private Medical Practitioner as a member to sit on the Medical Board at Jubbulpore has not yet been effected though sanctioned by the Hon'ble Minister-in-Charge, Medical Administration and Public Health Department as long ago as July 1931.

2. The Association places on record its indignation at the futile attempt made by the Inspector-General of Civil Hospitals, C. P., to undermine the solidarity of the Medical Association of Jubbulpore, by approaching individual members through the Civil Surgeon, Jubbulpore to fill the post of Honorary Physician and Member of the Medical Board instead of officially writing to the Secretary, Jubbulpore Medical Association.

3. The Association resolves to address the Ministry of Medical Administration and Public Health to prepare a register of qualified medical men in the province as early as possible in view of the fact that an All-India Council is to be created shortly.

It was also resolved to send copies of these resolutions to the Hon'ble Minister to the Government of the C. P. in charge of the Administration and Public Health Department also to the Indian Medical Association at Calcutta, Nagpur and the press.

Current Medical Literature

Acute Amoebic Dysentery and Amoebic Ulceration of the Small Intestine

A. G. BIGGAM

Trans. Roy. Soc. Trop. Med and Hyg 1930.
Nov. 25. Vol 24. No. 3, pp 347-350

The author gives a valuable description of two cases of acute amoebic dysentery, demonstrating that history alone cannot be relied on, for in both cases an acute and sudden onset with no previous history of dysentery and rapidly fatal termination despite antamoebic treatment, suggested rather a bacillary infection. The autopsy finding of healthy mucous membrane between the amoebic ulcers proved that the cases were purely amoebic and not mixed infection. The author points out that when a bed pan specimen only is examined, repeated negative microscopic results cannot always definitely exclude an acute amoebic infection. He further points out that involvement of small intestine in these two cases is at variance with the generally accepted view that amoebic ulceration rarely, if ever, extends above the ileo caecal valve.

J. N. Dutt.

The Treatment of Amoebic Dysentery and its Complications

WILLONGHBY & ASSLETT.

Jour. Roy. Nav. Med. Serv. 1931. Jan. Vol. 17.
No. 1. pp 19-26

In a careful concise summary of the subject the authors point out that amoebic dysentery treated solely with injections of emetine hydrochloride is not radically cured ; relapses occur usually within twelve months. They recommend a treatment with emetine bismuth iodide, rest and light diet. 1st night 1 gr. emetine bismuth iodide, 2nd night 2 grs, 3rd and subsequent nights 3 grains, up to a total of 27 grs. More than one course may be needed in the relapsing cases. E. B. I. is highly toxic and must not be given unless the patient's cardiac condition is good.

Emetine periodide is much less toxic and should be given when E. B. I. is not tolerated : dosage is 2 grains twice daily for twelve days.

Stovarsol alleviates diarrhoea and is specially useful for after treatment during convalescence.

Yatren 105, 0·5 gm t. i. d. per os for 10 days repeated after a week's interval in adults. The best method of administering it is by rectal enema—10 oz of a 2½ per cent solution preceded an hour earlier by 1 pint enema of 2 per cent solution of sodium bicarbonate. Yatren enema daily for ten days given in combination with E. B. I. is the best treatment for amoebic dysentery. Out of 150 cases so treated the authors noted but one relapse.

Complications :—Amoebic hepatitis is treated by injections of emetine hydrochloride. If abscess formation be suspected exploratory aspiration must be undertaken. If pus be located aspiration should continue until all pus is evacuated ; after-treatment by thorough course of E. B. I. and Yatren. *J. N. Dutt.*

Diathermy in the treatment of Amoebiasis

HOLDER & OSBORNE.

California and Western Med, 1931.
Mar. Vol. 34, No. 3, pp 189-190

Sigmoidoscopy revealed numerous small discrete ulcerations with greyish white base. E. histolytica

was found in the stools. Rectal diathermy was given maintaining a temperature in rectum of 110°—114°. F for 25 minutes. After the third treatment proctoscopic examination showed no ulceration of mucosa. Rectum and sigmoid appeared normal but for occasional petechiae. The patient gained in weight and two months later was well, symptom-free and stool examination was negative. *J. N. Dutt.*

The Trypaflavine treatment of Gonorrhoea

M. OPPENHEIM & A. FESSLER.

Med klin 1931. 1.653

In all cases where local treatment did not achieve the desired effect the authors tried Trypaflavine along with the local treatment and obtained very favourable results. The authors think that along with local treatment the injection of Trypaflavine hastens the cure of gonorrhoea and lessens the chances of complication. *J. N. Dutt.*

The therapy of Pylorospasm of the sucklings

SEIDEL.

Bruns Beitr 151, 483 (1931)

The pylorospasm of the sucklings should be treated in the beginning as all the light cases throughout medically. If the cases do not improve or if there is a rapid diminution of weight then surgical interference should be resorted to. In surgical operations WEBER-RAMSTEDT's operation is the operation of choice, the mortality of which in the last few years has diminished considerably. For the success in the treatment there must be a co-operation between a pediatrician and a surgeon. *J. N. Dutt.*

Contact Infection in Acute Poliomyelitis

A. S. MAC NALTY.

Lancet. Nov. 28. 1931, p. 1186.

The author describes two cases of acute-poliomyelitis which have occurred through contact infection in two young adult females of identical age. The resulting paralysis in both cases was of a very similar distribution affecting principally the left shoulder muscles. The first patient contracted poliomyelitis in a hospital ward and the second through kissing the first. In the second patient the incubation period was two days and falls within the range of two to ten days given by WICKMAN, FLEXNER and others. *J. N. Dutt.*

The Treatment for Secondary Anaemia

C. S. KEEPER & C. YANG.

Arch. Int. Med. Oct. 1931 p. 537

The authors describe the study of the treatment in 126 cases of anaemia due to various causes.

1. The recovery from anaemia due to chronic loss of blood is benefitted by liver and iron, transfusion of blood being necessary in cases of severe anaemia.

2. Anaemias resulting from inadequate or faulty diets were often associated with the avitaminoses or other deficiency disorders. Many of these patients recovered following a well balanced diet but accelerated by liver and iron.

3. The anaemia associated with chronic dysentery usually appeared in patients on inadequate diets. The clinical features of pernicious anaemia were observed in these patients including atrophy of lingual papillae, subacute combined sclerosis, gastric anacidity and anaemia responding to liver extract.

4. Anaemia associated with infestation due to hookworm may be cured with iron or liver and iron.

5. Women with the anaemias of pregnancy recover following transfusion of blood or after liver and iron.

6. Recovery from the anaemia associated with kala-azar is extremely slow in spite of treatment with antimony compounds, transfusion of blood and ingestion of liver and iron. In this condition it appears as if the damage to the bone marrow were responsible for the anaemia.

7. When recovery occurred in many of the foregoing types of anaemia the reticulocytes were increased but in some cases no increase of reticulocytes was observed.

8. In some cases of anaemia liver and iron were more effective than either alone.

9. Liver extract was of demonstrable value in some of the nutritional anaemias of childhood, anaemias associated with pregnancy and in chronic dysentery. *J. N. Dutt.*

The Influence of the Vagus nerve on the Secretions of Insulin.

G. A. CLARK.

The Journal of Physiology Vol. XXIII No. 3, p. 297.

The author carried out an experiment to find out the part played by the vagus nerves in controlling the secretion of insulin which is still somewhat obscure. He investigated the vagus nerve supply to the islet of Langerhans in rabbits and anæsthetised with "Numal" and unanaesthetised and in cats under "Numal" and under chloralose anæsthesia.

"Numal" anæsthesia of sufficient depth for surgical interference in rabbits and probably in cats prolongs the hyperglycaemia following intravenous injection of glucose.

In two rabbits glucose tolerance under

"Numal" was increased 7 to 10 days after cutting both vagi below the diaphragm. In cats the tolerance was increased 2 to 3 hours after cutting the right vagus and unaltered after cutting the left vagus below the diaphragm.

Cutting the right vagus below the diaphragm in cats under "Numal" or chloralose caused an immediate slight fall in blood sugar, which confirms earlier experiments and suggests the presence in this nerve of fibres carrying tonic inhibitory impulses to the islets of Langerhans.

J. N. Dutt.

Benign giant cell Tumours of tendon sheaths.

P. VASUDEVAN & M. NARAYANA PAI.

Madras Medical Journal.

The authors report 3 cases of benign giant cell tumours of tendon sheaths and apeneuroses chiefly of the hands and feet. These are usually small, hardly bigger than an orange in size. They differ from myelomata in that they show no bone involvement, possess a definite capsule, are of slow growth and without metastasis. The origin is trauma or local inflammation.

In section the tumours generally show giant cells with central nuclei, groups of large cells with granular and acidophil cytoplasm, spindle, oval or round cells and dense connective tissue, haemosiderin pigment in the cells and absence of mitotic figures. *S. K. S.*

A substitute for hand. towels

British Medical Journal, 1931. P 1050.

A new method of drying the hands after washing is stated to be by means of hot air blewn through the outlets of pipes about a foot apart one of which delivered the air upwards and the other downwards. Pressure on a foot pedal starts a motor and blows the air which thus acts as a substitute for towels. *S. K. S.*

Borderline Breast Tumours.

BLOODGOOD.

Annals of Surgery, 1931 xciii, p 235.

With the increased popularity of modern surgery more women seek advice regarding lumps in the breast. Formerly, women suffering from tumours of the breast would invariably wait a year or so and by the time consulting a surgeon seemed imperative, the tumour possibly benign in character developed positive clinical and microscopic characteristics of a malignant growth. With regard to borderline tumours *i.e.*, those which are difficult to diagnose clinically, microscopically or macroscopically the diagnosis is rendered difficult by apparent inconsistency between clinical data and microscopic findings.

The author reports that what is now ascertained to be a chronic lactation mastitis by present-day pathologists was in HALSTED'S time (1895) designated and operated on by him for supposed adenocarcinoma. BLOODGOOD states that a pathologist now-a-days understands the microscopic picture of chronic lactation mastitis and is not likely to be confused by the epithelial changes in a lactating breast which is the site of inflammation. Definite benign tumours constitute half the number of breast lesions and the broderline ones are generally benign. The author mentions another of HALSTED's operations where he removed a breast tumour completely because the pathologist reported that it was an adenocarcinoma. There was no recurrence in this case for 16 years, which warrants the author to opine that this tumour was a non-encapsulated benign cystic adenoma.

Borderline lesions of the breast include various stages of chronic cystic mastitis, cystic adenoma, fibroadenoma, intra-canalicular myxoma, tuberculous and suppurating mastitis and changes following trauma. *S. K. S.*

Observations on Melanosis Coli.

STEWART & HICKMAN.

Jour. of Path & Bacteriol XXXIV 1931. 61.

As a result of post-mortem examination of 600 cases the incidence of melanosis coli was calculated to be a little over 11 per cent. Cases of poisoning by heavy metals usually showed this manifestation while those contributing mostly to the number were cases of chronic constipation of a serious nature and carcinoma of the colon causing obstruction. The incidence of melanosis in two series of cases of carcinoma of the colon was 49 and 55 per cent respectively. It has been observed that the portion proximal to the growth showed the most intense pigmentation. *S. K. S.*

A Statistical Study of Placenta Praevia at the John Hopkin Hospital.

PECKHAM.

Jour. of Obst and Gynec 1931 xxi 39.

The percentage of placenta praevia cases is stated to be 0·2. The condition is more common in the white races.

The maternal mortality is 8·64 per cent. This has been reducing during the last 35 years and may be further reduced by prompter hospitalisation of bleeding patients and more frequent use of transfusion. The highest number of deaths occur if delivery takes place before intravenous therapy has time to effect a recuperation.

The maternal mortality is higher when delivery takes place at or near term. Premature labour is, however, more common. The mortality rate is higher in multiparae, primiparae contributing only 15% of the cases.

Death occurred in only one of the cases which suffered from puerperal infection although more than 50% of the cases suffered from such infection. Out of 16 cases in the series death from haemorrhage occurred in 13 but this number includes women admitted in a moribund condition and also those whose causes of death were unrelated to placenta praevia.

In about 50% of the cases the child weighed less than 2,500 gms at birth and in more than 25% of cases heart sounds were inaudible when the mother was admitted. The fetal mortality is 38·71 per cent if these two groups are not taken into account. The prognosis for the child in these cases is certainly grave.

The treatment consists in liberal transfusion. Hydrostatic bags in the marginal type of cases give good results. Caeserean section gives better chances for the child but reduces those for the mother and is not recommended. Moreover laparotomy is not indicated in most cases, both for the run down condition and the presence of infection from unsterile examinations or the use of vaginal packs before admission. Caeserean section without subsequent hysterectomy would in the latter group be associated with considerable danger of infection and should be restricted. It may, however, be permitted in cases of women with central placenta praevia who are admitted in good condition before or early in labour and with a living or viable child and in case in which the desire for a child outweighs any risk to the mother. *S. K. S.*

Perforation of Rectum : Helpful diagnostic Sign.

WATT.

Geo. Med. Assoc. Vol. 17, April 1928.

In this attention has been invited to symptoms *viz.* the pains with a tendency to localise beneath the costal margins, difficulties in breathing and pain in the back of the neck, which soon follow the injury to the rectum.

The case cited was that of a boy who sat on a brass curtain rod and sustained a rupture in the anterior wall of the rectum one cm. long just behind the bladder which was distended. *S. K. S.*

Paraurethritis

SILBAR

Journal of Urology 1931, xxv, 85.

The author emphasises the importance of the anatomy and embryology of the paraurethral ducts in the treatment of chronic and recurrent gonorrhoea. The method of diagnosing by skiagraphy is described. The line of treatment advocated is by drainage followed by obliteration of the ducts by the use of caustic substances or with the help of cautery. *S. K. S.*

Surgical Treatment of Priapism.

MCCAY & COLSTON.

Journal of Urology, Vol. 19, p 121.

The writers report two cases of priapism in which surgical treatment was employed and consisted in an incision made into one corpus cavernosum and the evacuation of contents of both through it. The midshaft of the penis on the dorso-lateral surface is the point of election. The incision should penetrate down to the spongy tissue. The fascia and skin are closed with interrupted sutures of catgut. A drain is left in the wound and the penis bandaged.

All clots should be squeezed out before the ligatures are applied as they make an ideal culture medium and are therefore prone to bring about infection.

Erection is said to have taken place in one of the reported cases. Unfortunately, no details of the other case are procurable. *S. K. S.*

Proportional Frequency of General Paralysis of Insane and Locomotor Ataxia in Different Social Classes.

MCKINLAY.

Jour. of Hygiene, Vol 27 January 1928, p. 174.

Examination of records regarding the broad groups of social classes in England and Wales suggests that G. P. I. is more common in the lower classes of occupation.

It is believed that mental work and worry is an etiological factor of considerable importance. If occupation or social status has any causative role in producing the disease then there must be also other predisposing factors of importance which more than counterbalance the effect of comparatively greater mental strain which upper social class persons are subject to. *S. K. S.*